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CULTURAL DIFFERENCES IN CHILDREN'S COLOR AND FORM PREFERENCES*¹

Office of Psychological Research, Gallaudet College

ROSSLYN GAINES SUCHMAN

A. INTRODUCTION

Color and form preference shows a developmental sequence from color to form among American (1, 15), French (5), and German children (10). In these studies the transition from color to form preference was viewed as a correlate of cognitive growth. However, the children were products of educational systems where attention to the form dimension is mandatory and rewarded; conversely, attention to the color dimension is usually irrelevant to the learning task and not reinforced.

The present study investigated the color *vs.* form preference of Moslem Hausa children in Zaria, Nigeria, West Africa. In the common Koranic educational milieu of Zaria, reading, writing, and arithmetic skills are not emphasized. The major task of the child, who does not speak Arabic, is to memorize the shape and sound of, but not the meaning of, the Arabic symbol from the Koran. The purpose of this investigation is to determine if the age relationship between color and form preference typical of Euro-American societies is also found in a non-Euro-American population undergoing different educational experiences. A secondary question is whether the stable, or uni-dimensional, aspects of preferred and nonpreferred stimulus selection found among American children (15) is characteristic of Hausa children in Zaria, Nigeria.

B. PROCEDURE

1. *Method*

All Ss were given three color *vs.* form choice tests. The tests are nonverbal measures using abstract forms. Test order was varied by random assignment

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of the three tests to each *S*. Instructions were given in the native language by an interpreter. All *Ss* were tested at the Koranic schools.

2. Tests

The color-form preference test is based on Doehring's test (6). The test consists of eight practice and 20 test cards. Each card contains three stimulus figures, each of which can vary in color, form, and size values. The values in color are red and blue, in form are circle and rectangle, in size are small and large. The *S* was asked to "point to the one not the same," and his response was scored according to the dimension of likeness of the remaining two figures. No verbal or token reinforcement was given after the practice series.

The eight practice cards serve to train *Ss* to select the negative stimulus. No single dimension was reinforced during practice, since the negative stimulus varied in color, form, and size from the remaining pair of like stimuli. For example, a practice card could contain one small red square and two large blue circles. The red square is the only correct response. This choice does not reinforce any one dimension, since color, size, and form are paired in the two remaining figures.

The preference test cards were of two types shown in Figure 1. There are eight cards comparing three stimulus dimensions and 12 cards comparing two dimensions where one dimension was held constant. In the example shown in Figure 1B, the form dimension is held constant, since all figures are rectangles and selection can be made only between the color and size values.

The color-form field test is based on the test used by Colby and Robertson (4). The present test consists of four demonstration, or "field," and 32 response cards. The field cards each contain eight stimulus figures arranged in two columns and four rows. The placing of the figures is randomly assigned except that no form or color is successive in rows and columns. Combinations of four colors and four forms are random within the rule that no form or color appears on the field card more than twice. The forms are circle, square, diamond, and triangle. Within each form subset, there are two orange, two red, two green, and two blue figures. There are eight response cards per field card. Each response card contains a single stimulus figure that matches the field card stimulus figure in either the color or the form dimension. For example, a response card containing a green triangle can be matched on the field card to a blue or red triangle or to a green diamond or a green square. Other than during the practice period, *S* is not able to match the two dimensions on any single card. Each *S* was asked to "point to the one most like the card in your hand." The order of field and response cards was randomized for each *S*.

The Weigl-Goldstein-Scheerer Color-Form Block (WGS) Test (7) consists of 12 planometric chips. There are four circles, four triangles, and four squares. Within each form subset, there is one red, one yellow, one green, and

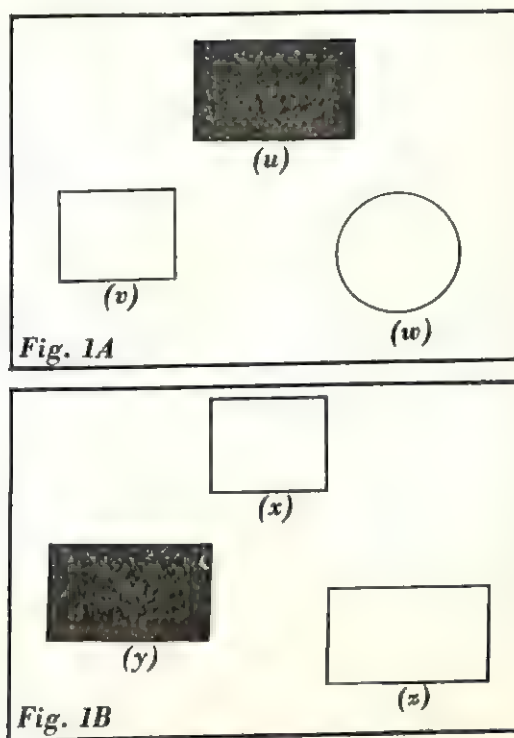


FIGURE 1

EXAMPLES OF COLOR-FORM PREFERENCE TEST CARDS

Figure 1A: Test card of color-form preference where color, form, and size vary. Items (v) and (w) are the same color, (u) and (v) are the same shape, and (u) and (w) are the same size. Figure 1B: Test card where one dimension is excluded from selection. Items (x) and (z) are the same color; (y) and (z) are the same size; no form choice is present.

one blue chip. The chips were randomly tumbled, and S was asked to "put the ones the same together."

3. Subjects

One hundred and twenty Ss ranging in age from 3 through 15 years were tested. The Ss were divided into four age groups: 3.0 through 5.6, 5.7 through 8.6, 8.7 through 11.6, and 11.7 through 15.6 years. There were 30 Ss in each group. Each group contained 15 boys and 15 girls.

C. RESULTS

1. *Color-Form Preference Test*

The choices were analyzed for age trend and individual preference stability. The age-trend analysis consisted of summing choices for each dimension within each of the four age groups. Table 1 gives the proportion of form and color choices as a function of age. It is clear that age is not a variable in preference among these *Ss*. There is no trend toward form preference. Only three of 119 *Ss*² preferred form on this test and their ages were 6, 12, and 12 years, respectively.

In the individual difference analysis, an *S*'s choices for each dimension on the 12 color-form cards were tabulated and an *S* was considered unidimensional in preference if one dimension was chosen at least twice as often as another. This 2:1 criterion was met by 111 of 119, or 93 per cent, of those tested. Table 1 also summarizes the proportion of *Ss*, at each age interval, who

TABLE 1
CHOICES AND INDIVIDUAL PREFERENCES FOR FORM OR COLOR
ON THE COLOR-FORM PREFERENCE TEST

| Age | Number of subjects | Proportion of | | | | |
|-----------------|--------------------|---------------|-------|------------------------|-------|---------|
| | | Group choices | | Individual preferences | | |
| | | Form | Color | Form | Color | Neither |
| 3.0-5.6 | 30 | .15 | .85 | .00 | .87 | .13 |
| 5.7-8.6 | 30 | .10 | .90 | .03 | .90 | .07 |
| 8.7-11.6 | 29 | .07 | .92 | .00 | .96 | .04 |
| 11.7-15.6 | 30 | .15 | .85 | .07 | .90 | .03 |
| Total <i>Ss</i> | 119 | | | | | |

were classified as preferring form, color, or neither (mixed dimensional choices). Again, most *Ss* have a unidimensional preference, preferring either color or form.

The data were then analyzed in terms of choices among nonpreferred stimulus dimensions. It will be recalled that each *S* must make four choices between two nonpreferred stimulus dimensions. That is, *Ss* who prefer color make four choices where color is constant and form and size vary in value; conversely, *Ss* who prefer form make four choices where form is constant and color and size vary in value. The nonpreferred scores of the three form *Ss* could not be analyzed because of sample size. The nonpreferred scores of the 108 color *Ss* showed that the form values were chosen significantly more often than the size values (binomial test (13), $p < .001$).

² Data were available only for two color-form tests for one *S*.

2. *Color-Form Field Test*

The choices between color and form were again analyzed for age trend and individual preference. The results parallel those of the color-form preference test. There was no age trend toward form preference. Among 118 Ss tested, 90 Ss, or 77 per cent, preferred color. Two Ss, aged 4 and 8 respectively, made more than eight errors and their test results are not included.

3. *WGS Color-Form Block Test*

The first sort was usually for either color or form and was scored as the preferred choice. Some of the younger Ss sorted differentially, and either color or form preference was attributed if eight or more blocks were sorted for one dimension. The results again show a monolithic color preference with 109 Ss sorting for color, 10 Ss sorting for form, and one S sorting for both color and form.

In conclusion, of the 357 color-form tests given to 120 Ss, only 24 scores showed a form preference. All age levels, from 3.0 to 15.6 years, were represented in these form scores. There was no single S who selected form on all three tests. There were seven Ss who preferred form on two of the three tests. Therefore, more than half of the form-dominant test results can be accounted for by seven Ss, and 103 of 120 Ss never met the criterion for a unidimensional form preference on any of the three color-form tests.

D. DISCUSSION

The large difference in perceptual selection between this African group and Euro-American groups obviates the usual statistical techniques. These African children clearly choose color in preference to form into adolescence; Euro-American children clearly cease choosing color and select form from kindergarten age into adulthood. The finding of a dichotomous perceptual choice between these cultures has relevance to issues of developmental theory, of factors influencing perceptual selection, and of the possible behavioral significance of this difference.

First, in terms of developmental theory, it is clear that the concept of a universal maturational process in perceptual color-form preference must be modified, if not abandoned. Maturation, or growing up in a normal environment, is not sufficient to generate the change from color to form preference. The concept of normal either must include the society of Zaria, Nigeria, or force the absurd stance that the Euro-American culture is the standard for normal development.

The second issue concerns the possible factors that produce differences in perceptual responses. Research studies indicate four possible directions of inquiry. First, the most frequent explanation offered for the transition from color to form preference is that form preference is a correlate of cognitive growth (1, 9, 12). The concepts of the above authors suggest respectively that Hausa children in Zaria should have less ability than Euro-American children in problem solving of the *IQ* test type, in verbal mediation, and in impulse control. However, even if Hausa children proved less adequate than Euro-American children in all these functions on specially developed culture-free tests, it would be necessary to demonstrate that the above were important variables in cognitive development in this African society before limited preference for form can be ascribed to limited cognitive growth.

This, then, leads to a second explanation offered: namely, that color preference can be functional and implicitly rewarding. Deaf American children are the only other group described in the literature (6, 14) who prefer color at elementary school age. The present author has suggested that deaf children receive more adequate information from the color dimension than from the form dimension and subsequently become more skilled in color discrimination than in form discrimination so that their levels of information and skill serve as reinforcers to color preference. It is difficult to imagine a society where color data have a more functional role than form data, but only an analysis of the Hausa society in terms of functional information sources would resolve the issue.

Third, Carroll and Casagrande (3) suggest that language structure determines perceptual preference. They ascribe the form preference of Navajo children to the Navajo use of different labels for same objects in different tenses. Unlike the other studies, responses to abstract forms were not obtained. The question of whether the strong Navajo form preference is stable with abstract forms remains for investigation. Nonetheless, the structure of the Hausa language could be investigated in terms of the number of specific labels for objects *versus* the number of generic, or vague, terms that are applied to different objects. The hypothesis examined would be that the higher the ratio of general to specific terminology, the higher the percentage of color choices.

Fourth, it has been shown that in the American society adults attain form concepts faster than color concepts (8), while nursery school children attain color concepts faster than form concepts (11). One major intervening variable in this society is the educational institution. Consider the requirements of learning to read, for example, and it is apparent that it is mandatory to attend

to form differences between letters (or words) if one learns to read. The Koranic education in Zaria requires that form differences be discriminated in terms of producing spoken sounds and written symbols, but comprehension is not required. Is it possible that perceptual discrimination skills are used only when the skill is a component of some concept or organizer meaningful to the individual?

Last, the possible behavioral significance of color preference remains for discussion. It has been shown that it is possible to predict error rate among nursery school children when both the type of concept and preference are known (16). That is, children who prefer color make more errors in form concept attainment than in color concept attainment; conversely, children who prefer form make more errors in color concept attainment than in form concept attainment. Only indirect evidence is available for older children: e.g., elementary school children learn form discriminations better than color discriminations (2). There is some support for the concept that perceptual preferences are a part of a larger network of responses. Thus, the African color *Ss*, like the nursery and deaf and hearing elementary school color *Ss*, have the same hierarchy of choices among stimulus dimensions, with form clearly a second choice and size clearly a third choice. (It should be noted that the American form *Ss* do not have the same hierarchical pattern of selection.) The data suggest that color preference is not an isolated bit of behavior. It appears that cross-cultural studies of perceptual preference could, first, throw light on thinking processes and, second, lead to better understanding of cultural differences in cognitive processes.

E. SUMMARY

This study investigated whether the age relationship between color and form preference typical of Euro-American societies is also found in a non-Euro-American population undergoing different educational experiences. Three color *vs.* form preference nonverbal tests were given individually to 120 children, ages 3 to 15, at the Koranic school in Zaria, Nigeria, West Africa. The results were unequivocal. There is no developmental transition from color to form preference at any age level. Of 357 color-form test scores available for the *Ss*, 24 scores showed a form preference. All age levels were represented in these form scores. No *S* selected form on all three tests. The results are discussed in terms of developmental theory and possible factors that produce these dichotomous perceptual choices between Euro-American societies and this African society.

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THE EFFECTS OF CONTEXT AND OF RATERS' ATTITUDES
ON JUDGMENTS OF FAVORABLENESS OF STATEMENTS
ABOUT A SOCIAL GROUP*¹

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A. INTRODUCTION

For a number of years after Thurstone introduced the method of equal-appearing intervals for the construction of attitude scales (20), it was assumed that the primary determinant—if not the only determinant—of the scale value of an item was the content of the item itself. Thurstone's assumption that scale values obtained from judges' sortings are independent of the judges' own stands on the issue appeared to be supported by a number of early studies (1, 5, 7, 15) reporting high correlations between ratings of opinion statements by judges differing markedly in attitude.

Edwards and Kenney (3), expressing themselves as not convinced by the evidence of the studies cited, raised the question of whether or not the same results would hold in the case of statements about highly controversial issues with respect to which judges are extremely ego involved. However, it was not until a study by Hovland and Sherif (8) that Thurstone's assumption was seriously weakened. Hovland and Sherif questioned whether or not Ss with extreme positions and intense involvement with the issues being judged were adequately represented in the earlier studies. They demonstrated that Thurstone's criterion for removing careless judges eliminated Ss with extreme attitudes and strong involvement, and that scale values assigned to some items by such Ss differ considerably from those assigned by "average" Ss. A number of subsequent studies (9, 11, 12, 21, 22) have confirmed Hovland and Sherif's finding that the scale values assigned to opinion statements are affected by the attitudes of the judges who do the sorting, though there is not complete agreement as to the direction of such effects.

Another line of investigation has considered the effects of context on

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judgments. Such effects had long been observed in psychophysical judgments [e.g., Fernberger (6), Hunt (10), Needham (14), and Rogers (16)] and had also been demonstrated in judgments of verbal stimuli [McGarvey (13)]. More recently, a number of researchers have investigated the effects of context on scale values assigned to items of the kind used in Thurstone-type scales [e.g., Cohen (2), Fehrer (4), Segall (17), and Upshaw (21)]. Almost all have found that the scale values of statements are influenced by the context of other statements in the set being scaled. Furthermore, the nature of this influence is usually such that (a) when extreme items are added to one end of the scale, there are shifts in values of other items away from that end; and (b) when extreme items are removed from one end, there are shifts in values of other items toward that end.

Several of the studies cited considered the effects of both attitude and context. Only one, however [Upshaw (21)], studied the interaction between these two variables. Comparison of data from two recent studies (18, 23) provides another opportunity to examine this interaction. Both of these studies focused on the possible usefulness of ratings of favorableness of statements as indirect measures of attitude. In both studies, groups of *Ss* differing in attitude toward Negroes rated statements about Negroes in terms of how favorable the statements were toward the social position of Negroes. Both the procedure and the *Ss* in the two studies were comparable; the major difference was the set of items to be rated. Thirty items, however, were common to both sets; and the ratings assigned to these items constitute the focus of the present paper.

In this paper the following questions are considered: (a) Do the scale values of attitude statements change as a result of changes in item context? (b) Are the changes the same for favorable and unfavorable statements? (c) Are the changes the same for *Ss* with different attitudes? (d) Is there an interaction between raters' attitudes and item context? (e) Do changes in context affect the usefulness of items as indirect measures of attitude?

B. METHOD

Median scale values assigned by five different attitude groups for 30 statements having to do with the social position of Negroes were compared to values for the same items in a different item context assigned by five comparable groups one year later.

1. *Subjects*

Ss were American college students who were members of organizations or participants in activities that can be considered to constitute criterion groups:

that is, they belonged to groups such that it seems reasonable to assume that most members hold specified attitudes about race relations. Only those groups of *Ss* that were comparable in the two studies have been included in the present analysis. The kinds of *Ss* and the numbers in each of the studies are listed in Table 1. In the table, "1962" refers to the Zavalloni-Cook study (23), and "1963" to the Selltiz-Edrich-Cook study (18).

2. Materials and Procedure

Zavalloni and Cook used the 114 items developed by Hinckley (7) in constructing his scale of attitude toward the social position of the Negro. These items were the same as those used by Hovland and Sherif (8) and

TABLE 1
ATTITUDE CHARACTERISTICS AND SIZE OF SUBJECT GROUPS

| Group | Attitude characteristics | Number of subjects | |
|-------|---|--------------------|------|
| | | 1962 | 1963 |
| I. | <i>Ss</i> assumed to have strongly equalitarian views on race relations and to be very involved in the issue. Negro students active in organizations working for integration or taking courses in intergroup relations. | 45 | 32 |
| II. | <i>Ss</i> assumed to have strongly equalitarian attitudes and to be actively concerned with race relations. White students active in the same organizations as Group I. | 69 | 102 |
| III. | <i>Ss</i> assumed to have equalitarian attitudes but not to be actively involved. It was assumed that students taking <i>elective</i> courses in intergroup relations fit this description because they voluntarily expose themselves to minority-group information that is typically presented with an equalitarian view, but they are not participating actively in efforts to change race relations. | 143 | 94 |
| IV. | <i>Ss</i> assumed to have anti-Negro attitudes but not to be actively concerned with questions of race relations. An earlier study in this program of research (Selltiz and Cook, unpublished) had found a higher proportion of moderately or extremely anti-Negro <i>Ss</i> in right-wing political organizations than in other student groups; thus, <i>Ss</i> for Group IV were recruited from such organizations. | 79 | 63 |
| V. | <i>Ss</i> assumed to be anti-Negro and to be actively concerned with race relations. Members of fraternities known to have led a campaign against the admission of Negro students to a border state university. | 40 | 23 |
| Total | | 376 | 314 |

Upshaw (21). The instructions for sorting the cards were essentially those described by Thurstone and Chave (20), including the designation of Category 6 as a neutral position.

Selltiz, Edrich, and Cook (18) used 106 items concerning the social position of Negroes. The instructions for sorting statements were similar to those in the Zavalloni and Cook study, the only real difference being that Category 6 was not specifically designated as a neutral point. Thirty of the 106 items were from Hinckley's set; the remaining 76 were new. The purposes of this item revision were (a) to develop a set of items distributed more evenly along the favorable-unfavorable continuum than was Hinckley's pool of items, which has a high proportion of items that—by current views—are extremely unfavorable; and (b) to construct items maximally sensitive to influence by raters' attitudes, in order to increase the usefulness of the rating technique as an indirect measure of attitude.

Selection of the items to be retained in the study by Selltiz *et al.* was based on data from Upshaw's and Zavalloni and Cook's studies. The primary criterion for keeping items was that the scale values assigned by different groups of Ss in those studies showed a consistent relation to Ss' attitudes. Eighteen unfavorable items met this criterion and were retained. An example of these items is: "The Negro should have freedom but never be treated on an equal basis with the white man." For 14 of the items, the ratings by the five groups of Ss in the Zavalloni-Cook study showed a regular order, with Group I giving the lowest (most-unfavorable) rating, Group II giving the next lowest, and so on. The other four items of this type that were kept showed only minor variations from this order. All of these items were rated lower (more unfavorable) by favorable Ss than by unfavorable Ss in Upshaw's study.

None of the favorable Hinckley items showed a completely regular pattern of ratings by Groups I to V in the Zavalloni-Cook study; however, eight items that showed a relatively consistent pattern of ratings by different groups were kept. For all of these items, the general relation of assigned scale values to judges' attitudes, in both the Zavalloni-Cook and Upshaw studies, was opposite to that for the negative items: i.e., the favorable items were, in general, rated as *more* favorable by the *less* prejudiced groups of Ss. An example of these items is: "Give the Negro a high position in society and he will show himself equal to it."

In addition, four extremely unfavorable items were kept: for example, "The full-blooded Negro is far beneath the notice of the most degraded white man." Items of this type did not discriminate among Ss with different attitudes in either the Upshaw or Zavalloni-Cook studies because all groups saw them

as extremely unfavorable; the four that were retained were given median scale values of less than 2.00 (on a scale from 1 to 11) by all groups in both studies. They were kept in order to provide some statements that almost all Ss would see as belonging in the most-unfavorable category and that could serve as a common reference point for the unfavorable end of the scale. For this reason, they were placed near the beginning of the set of cards to be rated in the second study. To serve a corresponding function at the favorable end of the scale, an attempt was made to provide early in the series four items that would be seen as strongly favorable by all groups of Ss. However, none of Hinckley's items was seen as unequivocally strongly favorable by all groups of Ss in the Upshaw and Zavalloni-Cook studies: that is, none was given a median scale value of more than 10.00 by all groups. Of the eight favorable items that had been retained on the grounds of relatively consistent differences among ratings by Ss with different attitudes, the three most favorable (median scale values of more than 9.40 by all groups of Ss), plus one newly written item that seemed unequivocally favorable, were placed near the beginning of the card set to provide a reference point for the favorable end of the scale.

The construction of the 76 new items for Selltitz, Edrich, and Cook's study was guided by data from the Upshaw and Zavalloni-Cook studies. Items similar in content to Hinckley's items that discriminated among attitude groups in the above studies were written, as were items having a more contemporary content than the 1932 Hinckley items.³

Table 2 shows the distributions of scale values for the total sets of items used in the two studies. To avoid possible differences in scale values that might

TABLE 2
DISTRIBUTION OF SCALE VALUES IN TWO SETS OF ITEMS*

| Scale value | Adjectival description | Number of items | |
|-------------|------------------------|-----------------|------|
| | | 1962 | 1963 |
| 1.00-2.99 | Extremely unfavorable | 51 | 30 |
| 3.00-4.99 | Moderately unfavorable | 21 | 18 |
| 5.00-7.00 | Intermediate | 11 | 9 |
| 7.01-9.00 | Moderately favorable | 16 | 18 |
| 9.01-11.00 | Extremely favorable | 13 | 31 |
| Total | | 112** | 106 |

* The 30 Hinckley items common to both sets are included in the distribution because they are part of the background against which any single Hinckley item is judged.

** The 1962 distribution contains only 112 items because Zavalloni and Cook eliminated two items from their analysis.

³ A more detailed description of the 106 items used in the Selltitz, Edrich, and Cook study is available in the paper reporting that study.

result from unequal numbers of cases in the different attitude groups in the two studies, the scale values used in these distributions consist of the *means* of the median scale values assigned by the five attitude groups.

As can be seen, the set of items used by Zavalloni and Cook is heavily weighted at the unfavorable end, whereas the Selltitz *et al.* distribution is almost completely symmetrical. It is clear, then, that the 30 items common to both sets were judged in very different contexts.

C. ANALYSIS AND RESULTS

The median scale values assigned to each of the 30 items by each of the five attitude groups in the two studies were compared, and the differences computed. For example, Item 68 in the Selltitz *et al.* series (Item 37 in the Zavalloni-Cook series), which reads, "The Negro should have freedom but never be treated on an equal basis with the white man," was assigned scale values of 1.3, 1.6, 2.2, 3.0, and 3.4 by Groups I to V, respectively, in the first study; and values of 1.4, 2.0, 2.3, 2.5, and 1.9 by the comparable groups in the second study, resulting in shifts of $+.1$, $+.4$, $+.1$, $-.5$, and -1.5 .

Table 3 shows the means and standard deviations of the shifts in scale

TABLE 3
MEANS AND STANDARD DEVIATIONS OF SHIFTS IN SCALE VALUES*

| Group | Unfavorable item type | | Favorable item type | |
|-------|--------------------------|-----|------------------------|-----|
| | Mean | SD | Mean | SD |
| I. | -.12 | .42 | .43 | .49 |
| II. | -.11 | .36 | -.20 | .43 |
| III. | -.33 | .53 | .01 | .42 |
| IV. | -.54 | .41 | .51 | .75 |
| V. | -.90 | .78 | .30 | .52 |

* Positive shifts indicate higher (more favorable) ratings in the second study; negative shifts indicate lower (less favorable) ratings in the second study.

values assigned by each of the five attitude groups under the two different context conditions for unfavorable items and favorable items separately. From this table it can be seen (a) that the unfavorable items were generally rated lower (more unfavorable) in the second (symmetrical) context than in the earlier (predominantly unfavorable) one; (b) that the tendency to see the unfavorable items as more unfavorable in the second context than in the first context increased with the unfavorableness of the raters' attitudes, except for an insignificant reversal between Groups I (Negroes) and II (strongly equalitarian whites); (c) that the favorable items were generally rated higher (more favorable) in the symmetrical context than in the earlier one; but (d) that

there was no consistent relation between judges' attitudes and the extent of the shift in the ratings of these items.

The statistical significance of these differences was examined by a five-by-two analysis of variance. The results are presented in Table 4. Both main effects (item type and attitude) and the interaction between them are significant.

TABLE 4
ANALYSIS OF VARIANCE OF SHIFTS IN SCALE VALUES

| Source of variance | <i>df</i> | <i>MS</i> | <i>F</i> |
|--------------------|-----------|-----------|----------|
| Attitude (A) | 4 | 1.47 | 5.35* |
| Item type (I) | 1 | 10.85 | 39.45* |
| A \times I | 4 | 1.62 | 5.89* |
| Within groups | 140 | .275 | |

* $p < .001$.

In view of our interest in the possible use of item ratings as an indirect measure of raters' attitudes, the patterns of scale values assigned to each item by the five attitude groups in the two studies were compared. To contribute to the usefulness of the technique as an attitude measure, an item must be rated differently by groups of *Ss* with different attitudes; and when these groups are arranged ordinally on a continuum from most to least favorable, their ratings should show a regular order. Of the 30 items common to the two studies, 14 (all unfavorable) had met this criterion in the first study—being rated lowest (most unfavorable) by Group I, next lowest by Group II, and so on. Of these 14 items, only eight discriminated in this way among the five groups in the second study. Of the 16 that had not met this criterion in the first study, three did so in the second. Because we were primarily interested in the technique as a measure of attitudes of white *Ss* toward Negroes, the patterns of ratings by the four white groups (II to V) were examined, with similar results. Of the 30 items, 18 showed a regular progression in the first study—being rated lowest by Group II and highest by Group V. Of these 18, only nine showed a similar pattern in the second study; moreover, on each of these nine, the difference between the ratings by Groups II and V was smaller in the second study than in the first.

In other words, the usefulness of these items as indicators of raters' attitudes was lessened by the change in the context in which they were presented. In almost every case this decrease in discriminatory power was attributable to greater downward shift on the part of the more-prejudiced groups (IV and V) than on the part of Groups II and III. The item given as an example in the first paragraph of the Analysis and Results Section illustrates this pattern: Groups IV and V showed downward shifts of $-.5$ and -1.5 , whereas Groups

II and III saw the item as slightly *less* unfavorable in the second context (shifts of $+.4$ and $+.1$). This difference in extent of shift was in part a function of the ratings in the first study. In that study, even though these items were presented in a set that contained a high proportion of unfavorable items, some of which were extreme statements of Negro inferiority, they were seen as very unfavorable by the Negro Ss (Group I) and pro-Negro Ss (Groups II and III). For example, the 18 items that showed a regular order of scale values by Groups II to V in the first study were given values of 1.18 to 3.20 by Group II in that study—with only one of the items being rated higher than 3.00, and only four higher than 2.00. Thus, even when the more extreme items were removed, there was little room for downward shift on the part of the favorable Ss: i.e., the 1962 ratings constituted a "floor." The ratings of these same items in the first study by Group V, on the other hand, ranged from 2.33 to 6.04, with only five items being rated below 3.00. Thus there was room for these ratings to shift downward when the more extremely unfavorable items were removed.

D. DISCUSSION

The results of the present investigation indicate that when attitude statements are rated for favorableness, the scale values assigned to them vary as a function of the item context in which they are judged. Furthermore, items in different regions of the continuum are affected differently by changes in context, Ss differing in attitude respond differently to such context changes, and these two variables interact.

The manipulation of the item context in the present study differs from that used in most other studies that have considered this question. Most such studies [e.g., Fehrer (4), Segall (17), and Upshaw (21)] have cut off all the items at one extreme of the distribution or have added items with values more extreme than any in the original set, with the result that the total range of the items in the set, as well as their distribution, has been affected. In the present study, context manipulation took the form of changing the distribution of items by decreasing the number of extremely unfavorable items and increasing the number of extremely favorable ones; but with little or no change in the values of the end statements—i.e., although the distribution was changed, the total range was changed little if at all. This difference between the present and previous studies makes it possible to consider whether or not change in the distribution within a given range has effects similar to those of change in total range.

The change in distribution had different effects on ratings of items in different parts of the scale. The unfavorable items were rated as more unfavorable

when judged against a background of items in which the number of unfavorable items was decreased and the number of favorable items increased. Changes on the favorable items were smaller and less consistent; but, on the whole, the favorable items were rated as more favorable in the second distribution (i.e., in the distribution in which the number of favorable items was increased) than in the earlier one. The negative shift on the unfavorable items is consistent with the findings of studies in which the item range has been truncated. The positive shift on the favorable items, however, is the opposite of what would be predicted on the basis of studies in which the total range was changed. Typically, such studies have found that ratings tend to shift toward the end of the continuum from which items have been removed, away from the end to which items have been added. By analogy, one would predict that a reduction in unfavorable items and an addition of favorable items would result in lowered ratings of the favorable items as well as of the unfavorable items. The upward shift of the favorable items may be thought of as "assimilation" toward the added items, similar to the effect of adding an anchor identical with the highest stimulus presented for judgment [Sherif, Taub, and Hovland (19); Weiss (22)].

Moving from a consideration of the differences between the effects of context change on ratings of favorable and unfavorable *items* to that of the differences between the effects on ratings by different *attitude groups*, it was observed that *Ss* with relatively unfavorable attitudes showed a greater shift in response to change in context than did strongly favorable *Ss*. Much of this trend could be attributed to the behavior of the attitude groups on the unfavorable items. Although all groups of *Ss* rated these items lower when they were presented in the distribution with relatively few extremely unfavorable items, this shift was considerably greater for the less favorable *Ss*; in fact, considering only the white *Ss* (Groups II to V), the amount of downward shift on these items increased regularly across the four groups arranged from the most to the least favorable.

The only available basis for prediction about *interaction* effects between item type and raters' attitudes is Upshaw's variable-series model (21), which predicts that truncation of the item series at one end leads to shifts in ratings only on the part of *Ss* whose own positions are at the opposite end. This prediction rests on the following assumptions: (*a*) that ratings are made in relation to the end points of the rater's reference scale; (*b*) that for judges whose own positions are within the item series, the extreme items define the ends of the scale; (*c*) that when the item series is truncated at the end opposite the rater's own position, his reference scale is changed, the extreme position at

that end of the scale being determined by the most extreme item remaining in the series; (*d*) but that when the item series is truncated at the end corresponding to the rater's own position, his scale is not changed because his own position functions as an anchor at that end. Specifically, this model leads to the following predictions:

1. When the most favorable items are removed from the series, favorable *Ss* rate the remaining items essentially the same as when they are presented in the total set of items; but unfavorable *Ss* rate the remaining items as more favorable than when they are presented in the total set.

2. When the most unfavorable items are removed from the series, the ratings of the remaining items by unfavorable *Ss* show little change, while those by favorable *Ss* are less favorable than when the items appear in the total set.

In general, Upshaw's findings confirm these predictions.

By analogy, in the present case, this model leads to the prediction that, with the reduction in the number of extremely unfavorable items, favorable *Ss* show more negative shift in ratings than do *Ss* with unfavorable attitudes. This prediction was not supported; in fact, the reverse occurred. Not only did unfavorable *Ss* show greater shifts in ratings in response to the change in context; on the unfavorable items they showed more negative shift than did the favorable *Ss*.

There are several possible reasons for this reversal: (*a*) The effect of changing the distribution of items within a given range may differ from that of truncating the series by removing all the items at one end, thus reducing the range. Strictly speaking, Upshaw's model, resting as it does on the concept of anchors, applies only to the latter case, and thus is not really applicable to the present study. (*b*) Our relatively unfavorable *Ss* (Groups IV and V) did not, on the whole, have extremely unfavorable attitudes. In fact, self-report measures in the second (1963) study showed Group IV *Ss* to be, on the whole, moderately favorable (though definitely less favorable than *Ss* in Groups I, II, and III), and *Ss* in Group V to be only moderately unfavorable. Thus in this respect, too, our conditions fail to conform to Upshaw's model. However, it is difficult to see anything in Upshaw's hypotheses that leads to the prediction that Groups IV and V show greater downward shift on unfavorable items than do Groups I, II, and III. If none of the groups has own positions at the extreme unfavorable end, Upshaw's model seems to lead to the prediction that all groups have the same reference point for the unfavorable end of the scale (i.e., the most unfavorable items in the series). (*c*) The third possible reason is the existence of "floor" and "ceiling" effects. The

ratings of the unfavorable items by the favorable Ss in the first study were so low that there was little room for downward shift. At the other end of the continuum, all of the favorable items common to the two sets were rated higher by Groups II and III than by Groups IV and V in the first study. Thus there was more room for the unfavorable groups to shift downward on the unfavorable items and to shift upward on the favorable items. In other words, the differential shifts by favorable Ss and unfavorable Ss (accounting for the significant interaction) may be an artifact of the original distribution of ratings by these groups in the first study. However, the fact that unfavorable Ss had more room to move toward the two extremes does not in itself explain such movement.

The finding that context change can decrease the differences between ratings of a given item by different attitudinal groups has important implications for the use of ratings of statements as an attitude measure. It becomes clear that one cannot simply select items from one set and use them in another unless the discriminatory power of the items within the context of the second set has been checked. Furthermore, it will probably always be necessary to keep some items that are not rated differently by Ss with different attitudes, in order to retain certain structural characteristics of the distribution that contribute to the discriminatory power of items that may be rated differently by different groups. For example, it may be necessary to include a number of strongly unfavorable items, even though such items do not in themselves contribute to the discriminatory power of the technique as a measure of raters' attitudes, in order to provide a background conducive to variation in ratings of moderately unfavorable items.

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PASSIVE DISCRIMINATION: THE NORMAL PERSON*

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A. INTRODUCTION

A common point of view found in both the popular and research literature has centered around the relationship between emotional disturbance and discrimination. The idea that frustration, poor parent-child relationships, and extreme deprivation are behind prejudice and discrimination has led to studies of Hitler, the Nazis, and other racist groups. These studies support the point of view that the unstable and "sick" are the primary conveyors of prejudice and discrimination. Research evidence stemming from studies of the authoritarian personality, rigidity, and other personality variables also lends support to this type of analysis. It may very well be that those who go out of their way to practice segregation or to join known hate groups, such as the Ku Klux Klan, are emotionally disturbed and have identifiable personality patterns; however, it is difficult to ascribe pathology to all who practice acts of discrimination, no matter how tempting this approach.

Perhaps a different kind of conceptualization is needed for handling the "passive" discriminator. By passive, the author refers to the person who discriminates through limiting interaction and "input" from other groups, but when queried might express nondiscriminatory attitudes. He might verbalize the equalness of all groups, but in the critical area of behavioral interaction he would prefer that his friends and friends of his children be of his own reference group.

The purpose of this paper is to analyze the discriminatory behavior of a "normal group" in terms of their relationship to a cohesive, identifiable subculture, and the resultant restriction of their outgroup interactions. It is the author's belief that the insulation of subgroups in our pluralistic society provides a perhaps unwanted, but nevertheless powerful structure that fosters discriminatory behavior against outgroups.

The author is therefore presenting a social psychological perspective on discrimination, with an emphasis on the effectiveness of subculture structures

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as a possible force fostering discrimination through restricting interaction, contact, and concern for other groups. Furthermore, from this point of view, the more normal personality—that is, the individual more fully integrated into the subculture—is hypothesized as the person who discriminates; and, conversely, the person less integrated and perhaps more alienated from his subculture is hypothesized as the individual with less discrimination. Specifically, the major hypotheses for empirical testing are:

1. That groups can be differentiated in terms of the degree of identification to a subculture;
2. That groups more identified with their subcultures will show more normal personality patterns; and
3. That those groups more identified with their subcultures and exhibiting more normal personality patterns will practice discrimination at a higher level than the less identified and less integrated.

From this social psychological perspective, the author is predicting the reverse of what is generally thought to be true—namely, the author hypothesizes that discrimination is practiced by the “more normal” and integrated; and, conversely, more democratic behavior is practiced by the less integrated and “less normal.” The author is also suggesting that the pluralistic social structures of our society with their various degrees of power are a critical factor in the problem of social discrimination.

B. METHODOLOGY

The data are drawn from a larger research project by the author.¹ A comparison was made between a matched group of male, third generation, adolescent, Japanese American nondelinquents (called Group X) and delinquents (called Group Y) on answers to selected interview questions and a personality test: the Gough California Psychological Inventory, CPI (5). The groups were matched in terms of ethnicity, age, schooling, area of residence, and sex. They were both similar in social class background as measured by residence, occupation, and income of their parents. A comparison of parental responses was also tabulated.

Discrimination was measured in terms of friendship, dating, and marriage preferences. Social interaction on these levels appears to be an important concern for adolescents, especially since the appearance of many social structures, both formal and informal (e.g., gangs, secret societies, fraternities, and sororities), is readily apparent at this age. The author recognized that other

¹ The study was supported by NIMH Grant, OM-476.

indices of discrimination can also be used, ranging from the broad economic to the use of public service facilities. However, attitudinal and behavioral change are probably more closely related to intimate areas of social interaction (3); therefore working side by side, although important, is not as effective for intergroup understanding as the voluntary social interaction that takes place after the office is closed.

The degree of ethnic identification and integration was measured through responses to group membership and participation in ethnic customs and activities. It was assumed that the availability of opportunities for ethnic activities was evidence of a subculture structure.

The data were tabulated through yes-no responses, and levels of significance are expressed in terms of p , derived from chi squares and Fischer's Exact Probability Test in cases where the expected cell frequencies fell below five.

C. RESULTS

The data in Table 1 show the degree of ethnic identification between the samples. Members of Group X were clearly identified with their own group; they belonged to groups that were primarily of their own ethnicity, they participated in more activities and customs that were Japanese than were of other ethnic origins, and they preferred ethnic cuisine. Sixty per cent of Group X belonged to Japanese groups only, as compared to only 16 per cent of Group Y; and a chi square of 12.2, significant at the .01 level, was computed between the groups. In terms of friends, 100 per cent of Group X, as compared to 75 per cent of Group Y, had only Japanese friends. A p of .05 utilizing Fischer's Exact Test was computed between the groups.

Sixty-two per cent of Group X participated in Japanese activities, as compared to 32 per cent of Group Y. A chi square of 4.3 is significant at the .05 level. Thirty-nine per cent of Group X observed Japanese customs at home, as compared to none of Group Y, a difference that is statistically significant.

TABLE 1
ETHNIC IDENTIFICATION BETWEEN NONPROBATIONER (GROUP X) AND
PROBATIONER (GROUP Y) GROUPS

| Adolescent responses | Per cent "Yes" responses | | |
|---|--------------------------|-------------------------|-----|
| | Group X ($N = 37$) | Group Y ($N = 25$) | p |
| 1. Belong to Japanese groups only | 60 | 16 | .01 |
| 2. Have Japanese friends primarily | 100 | 75 | .05 |
| 3. Participation in Japanese activities | 62 | 32 | .05 |
| 4. Observance of Japanese customs | 39 | 0 | .05 |
| 5. Preference for Japanese food | 69 | 32 | .05 |

Sixty-nine per cent of Group X preferred Japanese food, as compared to 32 per cent of Group Y. A chi square of 5.4 is significant at the .05 level.

The data support the hypothesis concerning differences in ethnic identity between the groups.

Table 2 shows the differences in personality scores on the CPI between

TABLE 2
DIFFERENCES BETWEEN JAPANESE NONPROBATIONERS (GROUP X) AND JAPANESE
PROBATIONERS (GROUP Y) ON THE CALIFORNIA PSYCHOLOGICAL
INVENTORY (CPI)

| CPI variable | Group X (N = 30) | | Group Y (N = 30) | | p |
|---|---------------------|-----|---------------------|-----|-----|
| | Mean | SD | Mean | SD | |
| Poise, Ascendancy, and Self-Assurance | | | | | |
| Dominance (Do) | 21.3 | 6.7 | 21.3 | 5.1 | |
| Capacity for Status (Cs) | 15.4 | 3.4 | 14.1 | 3.0 | |
| Sociability (Sy) | 21.1 | 5.8 | 21.5 | 4.7 | |
| (Social Participation) | | | | | |
| Social Presence (Sp) | 33.2 | 6.4 | 32.7 | 3.5 | |
| Self-Acceptance (Sa) | 18.7 | 4.4 | 19.1 | 3.8 | |
| Sense of Well Being (Wb) | 32.8 | 5.2 | 30.7 | 6.0 | |
| Socialization, Maturity, and Responsibility | | | | | |
| Responsibility (Re) | 26.4 | 4.4 | 20.4 | 6.1 | .01 |
| Socialization (Delinquency) (So) | 36.6 | 6.2 | 28.3 | 7.1 | .01 |
| Self-Control (Impulsivity) (Sc) | 25.1 | 9.2 | 22.1 | 9.9 | |
| Tolerance (To) | 18.8 | 4.9 | 15.2 | 5.0 | .01 |
| Good Impression (Gi) | 13.4 | 6.0 | 12.7 | 6.0 | |
| Community (Infrequency) (Cm) | 24.8 | 2.7 | 24.2 | 3.1 | |
| Achievement Potential and Intellectual Efficiency | | | | | |
| Achievement via Conformance (Ac) | 23.0 | 3.4 | 20.7 | 5.2 | .05 |
| Achievement via Independence (Ai) | 17.4 | 3.9 | 14.2 | 3.6 | .01 |
| Intellectual Efficiency (Ie) | 34.8 | 5.1 | 30.9 | 6.3 | .05 |
| Intellectual and Interest Modes | | | | | |
| Psychological-Mindedness (Py) | 8.8 | 3.3 | 9.3 | 2.2 | |
| (Psychological Interest) | | | | | |
| Flexibility (Fx) | 10.7 | 3.8 | 8.0 | 2.9 | .01 |
| Femininity (Fe) | 16.8 | 3.0 | 14.7 | 2.7 | .01 |

Groups X and Y. There were significant differences between the groups on the following scales: Responsibility (Re), Socialization (So), Tolerance (To), Achievement via Conformance (Ac), Achievement via Independence (Ai), Intellectual efficiency (Ie), Flexibility (Fx), and Femininity (Fe).

Group X scores were more normal than Group Y scores in that responses were congruent with the norms established for high school adolescents; Group Y scores were closer to the norms established for socially deviant populations (e.g., California delinquents) than Group X scores. Since lower mean scores indicate a lesser amount of the characteristic, the data support

the hypotheses of less personality integration among Group Y adolescents than among Group X adolescents.

The data in Table 3 analyze responses in terms of social discrimination. Groups X and Y were asked questions regarding dating girls of various ethnic backgrounds. Both Groups X and Y would date other Japanese, other Ori-

TABLE 3
SOCIAL DISCRIMINATION: DIFFERENCES BETWEEN NONPROBATIONERS (GROUP X) AND PROBATIONERS (GROUP Y) AND THEIR PARENTS ON SOCIAL INTERACTION

| | | Per cent "Yes" responses | | |
|---|---------------------|--------------------------|--|------|
| Response | Group X (N = 37) | Group Y (N = 25) | | p |
| Adolescent Responses | | | | |
| Have or would date girls that are: | | | | |
| 1. Japanese | 92 | 100 | | n.s. |
| 2. Other Oriental | 68 | 72 | | n.s. |
| 3. Caucasian | 65 | 68 | | n.s. |
| 4. Mexican | 27 | 68 | | .01 |
| 5. Negro | 8 | 36 | | .02 |
| Parental Responses | | | | |
| Would permit sons to date: | | | | |
| 1. Japanese | 97 | 92 | | n.s. |
| 2. Other Oriental | 49 | 72 | | n.s. |
| 3. Caucasian | 43 | 76 | | n.s. |
| 4. Mexican | 5 | 60 | | .001 |
| 5. Negro | 3 | 36 | | .01 |
| Parental Responses | | | | |
| Would prefer friendship: | | | | |
| 1. Majority of Japanese friends for son | 94 | 53 | | .01 |
| 2. Japanese friends for self | 94 | 53 | | .01 |

entals, and Caucasians in approximately equal proportions. However, statistically significant differences between the groups were found in terms of dating Mexican and Negro girls. Here Group Y responded in terms of much less discrimination; 68 per cent of Group Y would date Mexican girls as compared to only 27 per cent of Group X. A chi square of 8.6 is significant at the .01 level. Thirty-six per cent of Group Y would date Negro girls as compared to only 8 per cent of Group X. A chi square of 5.6 is significant at the .02 level.

The parents of both groups were also asked questions about social interaction. Even though the nonprobationer parents (Group X) were generally more restrictive than were Group Y parents toward their sons' dating other Orientals and Caucasians (49 per cent to 72 per cent, 43 per cent to 76 per cent), the differences were not statistically significant.

However, in the area of their children's dating Negroes and Mexicans, significant differences were noted. Only 5 per cent of Group X parents would allow the dating of Mexican girls as against 60 per cent of Group Y ($p = .001$); 3 per cent of Group X parents would allow the dating of Negroes as against 36 per cent of Group Y ($p = .01$).

Parental responses were also similar in terms of friendship (see Table 2). Ninety-four per cent of Group X parents preferred only Japanese friends for their children as compared to 53 per cent of Group Y. The difference was significant at the .001 level. The same proportion and the same significant difference were found in terms of friends for themselves.

Other variables (not included in the tables) also showed similar differences. For example, 72 per cent of Group X parents would restrict marriages to only Japanese girls as against 30 per cent of Group Y parents, a difference that was significant at the .01 level.

The data support the hypotheses that the Group X adolescents and parents take a much more restrictive position in regard to intergroup interaction than Group Y adolescents and parents; and, conversely, the less ethnically identified population, Group Y, supports a much more liberal position than Group X. It should also be noted that both groups were in high agreement as to the desirability of intraethnic interaction, which can be taken as evidence that Group Y respondents were not overtly rejecting their ethnicity.

Our data then lead to the acceptance of the overall hypotheses, that the ethnically identified and the "normal" practice social discrimination at a higher rate than do the less ethnically identified and the "less normal," at least as measured by the present study.

Generally, observations provided further validation for the empirical findings. Group X adolescents and parents considered themselves normal, nondiscriminatory, democratic, and unbigoted. The parents, especially, would have been surprised had the author indicated (which he did not) that their responses were somewhat inconsistent. Although professing the equality of all, they generally steered their children through the Japanese social structure—the all ethnic church (Buddhist or Protestant), the all ethnic YMCA or Boy Scout Troop, the all ethnic Little League—and carefully screened out "other groups" from this structure.

Impressions gathered from members of other cohesive subgroups were also similar—for example a Jewish girl noted that her father was for democracy and for integration, but carefully steered her through the Jewish social structure with the threat of "disowning her" if she dated or married out of

her group. Possibly the greatest danger in this form of "passive discrimination" is the unawareness and the normality of those caught up in it.

D. DISCUSSION

It is interesting and perhaps gratifying to note the relationship between conceptualizations and theories, and social preceptions and behavior. Although there have been many influences on theories of discrimination, bigotry, and prejudice, it would appear that much of our thinking in this area comes from studies of the authoritarian personality (1) and of Allport (2). The weight of the evidence concerning the emotionally disturbed, the authoritarian personality, the rigid, the need for scapegoating, and other similar psychological phenomena is impressive and undoubtedly reflects part of the problem of discrimination. However, the author strongly doubts that it explains the prevalence of discrimination over large sectors of the population; he believes that a social psychological theory that analyzes the cohesion and structures of subcultural groups, their goals, attitudes, and behaviors comes closer to striking at the larger significance of this problem.

Probably the most discriminatory and the most influential is the dominant white, Anglo-Saxon Protestant group, since identification with and possession of its attribute-based criteria allows an individual the opportunity to participate in the major structures in our society. His social, economic, educational, political, and psychological needs are met through the dominant institutions; and the more "normal" and integrated he is to his culture, the less opportunity he will have to interact and meet with members of other subcultural groups on a voluntary basis.

Predictably, we find other integrated subgroups based on religion, ethnicity, or some other criterion providing structures and opportunities for its own membership. Those subcultures with a high degree of cohesion, structure, and integration may then face the same dilemma of turning inward that tends to strengthen a "we"- "they" dichotomy. This does not necessarily have to be so, and leadership in many instances can be effective in moving groups toward a much more sympathetic position in regard to problems of other groups. However, it does seem significant that many are couched in terms of "it could happen to you." It may be a realistic recognition that the self-interest of a group is a more powerful motivating factor than appeals on a more idealistic level. It also appears that some groups that have faced overt discrimination in the past are much more sensitive and helpful towards others.

The problem of discrimination from our perspective calls for a different

type of analysis. Gordon (+) uses the terms structural pluralism, since the existence of subsocieties with their own networks, cliques, institutions, organizations, and friendship patterns, functioning not only for the immigrant generation but for succeeding generations as well, becomes the unit for analysis. The organized subculture can be viewed positively: it probably is a key factor to the control of mental illness, crime and delinquency, and the like, but it may also involve other risks—discrimination and prejudice being one. The important question is how ethnic prejudice and discrimination can be reduced and conflicts kept to workable levels in our society when separate structures for separate groups limit primary group relationships among persons of various ethnic or religious backgrounds.

The structures set up in late high school and college appear to be clear examples of the structural pluralism that attempts to control and limit social interaction to "desirable" groups. The dilemma is that the more effective the subcultures, the higher is the probability of discrimination.² Conversely, marginal identification would be associated with an increasingly democratic outlook.

E. SUMMARY AND CONCLUSIONS

There is a story that concerns a former inmate of a concentration camp. When asked about the people who may have contributed to his plight he was said to have answered, "I didn't mind my enemies because I knew who they were, and the worst they could do to me was to kill me. I didn't mind my friends because I knew who they were, and the worst they could do to me was to stab me in the back. I guess the ones that I was really concerned about were those who didn't care, or were too busy with their own affairs, because I never really knew who they were and they would set the stage for the conditions which would enable my enemies to kill me and my friends to stab me in the back." Although it may be a fictionalized account, the story makes the point that lies behind this article; for it is aimed more at the "normal," the integrated, and the comfortable than at the less integrated or alienated as possible influences behind discriminatory behavior, and suggests that their behavior is perhaps a consequence of a social structure that aids an individual in his socialization processes and serves a very valuable function. But the paradox may lie in the fact that the more effective the subcultural integration is

² A common observation of this phenomenon is the identification with a school through an athletic team with its resultant bitterness toward all of its foes, "our team against theirs." An extreme identification might be the refusal to have any social interaction with members of the "enemy." The same observation might also be made of the superpatriot who will broach no dealings with "foreigners."

(e.g., the more need satisfaction provided by the subculture), the less are the individual and family, caught in these strong influences, able to permit intimate social interaction with other groups.

The implications of the present study are important. If replicated studies confirm the data, we might begin to approach conflicts among groups through their structures, rather than through personality and the individual *per se*.

There are hopeful signs to warrant a more optimistic point of view. Subcultural groups are changing, and the acquisition of the "American culture" through learning and interaction is proceeding at a pace that, although slow to some, is nevertheless progressing. Groups that may have previously emphasized boundary maintenance are becoming more permeable, and there are important groups in our society (e.g., the "intellectual and academic") wherein interest and achievement are more relevant for participation than ethnicity or religion. The verbal goals of most subculture groups include a more democratic society, and the current stage of ethnic isolation of certain groups may be thought of as stages in a developmental process.

However, the risks of structural pluralism should be made clear. Ethnic or religious subcultural integration can turn into parochialism and isolation as easily as it can turn to a process that aids individuals and groups through the difficult problems of socialization and acculturation.

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NEWCOMB AND DISCOVERED PROPERTIES OF COMMUNICATIVE ACTS*

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A feature of language, valuable to art and a plague to science, is that we can give names to things that do not exist. This writer believes that "co-orientation," in the context of two-person communication, is a bit like the term "aether" in outmoded physics—useful for unifying certain accounts of observations, but totally lacking in referent and made unnecessary by substitution of a more empirical, if less unified, description. To make the point of this paper, it is necessary to examine in some detail—and, the writer hopes, fairly—the use of certain key terms in the well-known account of "co-orientation."

Theodore M. Newcomb's initial assumption in his theory of "co-orientation" (2) is "that communication among humans performs the essential function of enabling two or more individuals to maintain simultaneous orientation toward one another as communicators and toward objects of communication" (2, p. 393): i.e., objects that the two persons communicate about. Although we do not have a definition of co-orientation from Newcomb in his paper, he tells us that the idea "represents an assumption; namely, that A's orientation toward B and toward X are interdependent. A-B-X are therefore regarded as constituting a system" (2, p. 393). Lateral similarities of A's and B's orientations to X are to be called "symmetrical relations" for Newcomb's purposes. Symmetry, however, is not the equivalent of co-orientation, since Newcomb remarks that "Co-orientation is of course possible with little or no symmetry, but the facilitative value of symmetry for co-orientation is considerable" (2, p. 395).

The following passage may be examined instructively against the background just outlined: "The first advantage of symmetry—particularly of cognitive symmetry—is that of ready calculability of the other's behavior; the more similar A's and B's cognitive orientations, the less the necessity of either of them to 'translate' X in terms of the other's orientations, the less the likelihood of failure or error in such 'translations,' and thus the less difficult and/or the less erroneous the co-orientation of either" (2, p. 395).

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The writer takes this to be a key passage by which we may delineate Newcomb's idea. Co-orientation, evidently, is open to error and to difficulty. Co-orientation would seem to demand a cognitive act in this way, but it is not clear that it is *just* an act. It might also involve a cathectic act, which is probably the point of using "difficulty" in addition to "error" in the above. Co-orientation, then, involves, but so far is not necessarily limited to, an error-free or unencumbered "translation" on "my" part of "your" orientation. It is difficult to handle "translation" with respect to noncognitive acts without further help from Newcomb, but perhaps we need not be troubled by that. Newcomb follows with the "following inconclusive postulate: *The stronger the forces toward A's co-orientation in respect to B and X, (a) the greater A's strain toward symmetry with B in respect to X and (b) the greater the likelihood of increased symmetry as a consequence of one or more communicative acts*" (2, p. 395).

Co-orientation therefore does not imply similarities in "my" orientations and "yours" (that is symmetry) but rather our correct translations of one another's orientations, which may in fact be quite different. Symmetry, Newcomb wants to hold, may relate to co-orientation in some causal way, but they are logically distinct notions. His examples help: "As attraction between two spouses decreases strain toward symmetry would increasingly narrow to such X's as are required by personal comfort and conformity with external propriety; similarly, the range of X's with regard to which there is a strain toward symmetry is greater for two friendly than for two hostile members of a chess club" (2, p. 399).

We have, then, "forces" (and, in other places, "requirements" and "demands") for co-orientation. On the other hand, and only causally connected, we have "strain" toward symmetry. The puzzle now before us is how co-orientative "demand" is different from symmetrifice "strain." Newcomb's position is that the former is conceptual, the latter psychological. We get this developed statement of the theory:

Given perceived asymmetry with regard to X, and demand for co-orientation toward B and X, the possibilities for A are such that he can:

1. achieve, or attempt to achieve, symmetry with regard to X
 - a. by influencing B toward own orientation,
 - b. by changing own orientation toward B's,
 - c. by cognitively distorting B's orientation;
2. introduce changes in other parts of the system
 - a. modify his attraction toward B,
 - b. modify his judgment of his own attraction for B,
 - c. modify evaluation of (attraction toward) himself, (A),
 - d. modify his judgment of B's evaluation of himself, (B);

3. tolerate the asymmetry, without change. As suggested by this listing of possible "solutions," the perception of asymmetry, under conditions of demand for co-orientation, confronts A with a problem which he can attempt to solve behaviorly . . . and/or cognitively. . . . Whatever his chosen "solution" it has some effect upon A's phenomenal A-B-X system—either to reinforce it or to modify it. As a result of repeatedly facing and "solving" problems of co-orientation with regard to a given B and a given X, a relatively stable equilibrium is established. If A is free either to continue or not to continue his association with B, one or the other of two eventual outcomes is likely: (a) he achieves an equilibrium characterized by relatively great attraction toward B and a relatively high perceived symmetry, and the association is continued, or (b) he achieves an equilibrium characterized by relatively little attraction toward B and by relatively low perceived symmetry, and the association is discontinued . . . (2, p. 401).

What seems to be happening, then, under the "situational demands of co-orientation" as distinct from the "psychological strain toward symmetry," is that one satisfies these "situational" *demands* either by symmetry or by changes that appear to obviate the incongruity with which asymmetry seems to lay over these situational demands: i.e., for co-orientation. It is important to notice, as Newcomb carefully reminds us, that co-orientation is "situational" rather than psychological. Co-orientation may continue to underlie, in some sense, communicative acts where asymmetry either is psychologically tolerated by our "agreeing to disagree" or is made irrelevant by changes in the self or association, as set out in "No. 2" above. In these cases it is important to notice that the situational "demand" for co-orientation is what presents a "problem" for "solution."

Newcomb's language would suggest that in studying communicative acts we can expect to make some kind of finding about co-orientation. The use of nouns like "orientation," "co-orientation," and "asymmetry" might—and, this writer believes, does—mislead us into thinking that these are names of natural properties of the universe, like gravity, that might be open to empirical study. This writer would like to suggest that the redescription of communicative acts in terms of verbs rather than the nouns Newcomb uses would better clarify empirical material one might bring to his theory. The present writer believes also that it can be shown that "co-orientation" is not a necessary concept in any of the sorts of examples he takes up.

For example: You and I disagree on a position you have taken at a meeting of the chess club. I say your views are destructive, you say not. Demand for "co-orientation" in this situation leads us to seek a "solution." Since we are friendly members of the chess club we might "tolerate asymmetry" by

"agreeing to disagree." Another possibility, "No. 2" in Newcomb's list, evidently would mean simply some alteration in ourselves or in our friendship; so we may be led to examine "No. 3" first.

How can we agree to disagree? I am not asking how it is situationally possible to do so, but for psychological instruction on how to go about it. If there is to be no change in the asymmetry of our orientations after we have encountered your troublesome view (our "X"), what is the psychological force of "agree"? What are we doing within the A-B-X system that did not take place between A and B before X was introduced? Newcomb adds "without change" to the No. 3 possibility. It is not quite clear now how this is to be taken. It *seemed* to refer to asymmetry. Perhaps it still does. But the possibility is offered as one in a system whose dynamics "are by no means limited to those of strains toward symmetry, but must include *changes* resulting from acceptance of existing asymmetry" (2, p. 401). Evidently what I do is to change my attitude—not that I *change* my attitude toward X (your view), but that you and I both *adopt* an attitude toward our disagreement. We have established a new X, our disagreement, in which we arrive at symmetry. This new A-B-X system evidently in some way makes tolerable the asymmetry of the old.

This addition of adopted attitudes toward our disagreement is the present writer's contribution, not Newcomb's. What this writer believes Newcomb now must show is in what sense we have reached a "solution" within our first A-B-X system. A "solution" implies that there has been a change, that a "problem" has been resolved by alterations in features of the situation that characterized the "problem." This writer has suggested that the notion of asymmetry in orientations—with the introduction, not unreasonably, of a new A-B-X system—is sufficient to account for the "solution" in this case. The writer is not observing that the present account is more true to the facts than Newcomb's. The writer is only claiming that co-orientation is not a necessary element in an accounting of cases such as those that seem to be the point of possibility No. 3.

The use of "co-orientation" in possibility No. 2 falls away in a somewhat different way. For example: If I modify my attraction toward you as a way of "solving" the situation generated by our disagreement, we now presumably disagree about you. I believe you are not worth being attracted to, you evidently believe you are. But what had been the "demands" of the situation in terms of co-orientation? There are a number of possibilities under No. 2. Are we interested in striking and sustaining some kind of situational equilibrium, as Newcomb suggests? Or are we interested in which No. 2 possibility meets our own demands? In what sense can the "situation" make *any* demands?

Let us try putting this another way. Newcomb wants us to notice that by adding a new orientation—toward you as not deserving my attraction—I somehow “make right” a needful (or out-of-equilibrium) state. This is the state in which I was attracted to you, we disagreed on your views (“co-orientation” is lacking). Now I have worked a “solution.” There is a new situation. I am less attracted to you, we still disagree (“co-orientation” has been established). The first state *does* seem to lack equilibrium, but my contention is that this lack makes sense only in a description of my demands (which of course must take into account that you have demands, too) and not “demands” of a situation.

It is easy to misunderstand the point the writer is now pressing. It *may* be the case in an array of communicative acts that interesting “tit-for-tat” events might be charted. It might also be possible to make sensible remarks about equilibrium in connection with these shifts, which the writer thinks is what Newcomb essentially wants to preserve. For example, I might be willing to trade a favorite attitude about myself or you for an attitude that makes it possible, on some grounds having to do with my interests or demands, for us to live with our disagreement (Possibilities No. 2). This I might do in a hard case, while I might not need to trade anything in a softer one (Possibility No. 3). It is also true that I might make you see the light (“1a”), you might persuade me (“1b”), or I might in some way take you in, “win you over” (“1c”). These things *might* occur, and it is certainly important to examine the empirical conditions under which they do in fact occur. But to treat “co-orientation” as a perceived “equalizing” property of *situations*, as this writer is convinced Newcomb does, is to invite confusion about the point of empirical investigation relative to his theory. Such investigation cannot be directed toward making *discoveries* about something called “co-orientation” in “situations” in the way that we cannot *discover* what a color is, what is the right way to skin cats, or what a situation demands. We *can* state the conditions under which *colors* are perceived, we can responsibly dispute ways of skinning cats, and we can systematically notice the conditions under which people are *more attracted* or *less attracted* in situations where differences in orientation are relevant. When this writer says that this last is what we *must* do in any tendentious empirical study relating to Newcomb’s theory he is offering a logical description, nor a proposal. We must do that because that is in fact what we do.

Perhaps there would appear to be no payoff in the present author’s position. But Newcomb’s account has this writer wondering, for example, how to handle shamanism, where the “situation demands” that the shaman see himself as culturally apart from the community, while the community ritualizes

his acts into their culture (1). In one sense, the situation seems to "demand" that some imbalance be sustained. Or, for example, what about my persuading you to become an anarchist? If I win, we both lose, because to be *persuaded* to be anything is the first disqualification that would keep you out of good standing in anarchist circles. Some "situations," the writer is saying, are necessarily "asymmetrical" in interesting ways, and a general theory of "equilibrium" about communicative acts just seems not quite up to accounting for them.

It might be that we *could* cook up remarks about equilibrium even in these thorny cases. But would that show something we had overlooked in the cases themselves? What would be the point of keeping a balanced ledger on these cases anyhow?

We do not seem to want a way of measuring attraction and agreement in order to show how the loss of one holds equilibrium in the situation for the gain in the other. Further, for example, what about my dilettante friend who most likes people who disagree with her? If Newcomb's theory is patched up to say that her peculiar relationships to B involve a situation that demands co-orientation when there is agreement and the demand is resolved when asymmetry sets in, one can acknowledge the move but wonder about its point. How does one go about "testing" a theory that is open to moves of this kind, and is there any point in doing so?

It is not surprising, in fact, to notice two or more features that change in any situation where disagreement is introduced, either intellectual or affective. The introduction of the disagreement, itself, is the first change. If the changed situation is to be "dealt with" it is only analytic (i.e., a remark about how we use language) to point then to other features in the situation that change in the "dealing." If the disagreement is not dealt with, it remains as a situation in which we disagree. To say, then, nominatively, that there is "asymmetry, without change," is a bit like reporting the weather. We always have weather; what we want to know are the conditions, what kind of weather it is. This writer's complaint may not be sociologically interesting, but it is possible that at the same time it could be of interest to people who are sociologists.

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A MAP FOR EXPLORATIONS IN ROLECENTRISM*¹

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A. INTRODUCTION

The intent of this paper is to draw attention to a form of behavior that, because it is universal and obvious, has neither been clearly identified nor systematically studied. Self-role interaction is the general context in which will be sought the identification and location of the concept of "rolecentrism."

The construct of role has a secure place both in sociology and in psychology. Despite widely divergent definitions, behavioral scientists continue to find it a highly useful explanatory concept. In Biddle's (2, 3) bibliographies on role theory, 1015 references are cited. The study of the self also has its history and, while others preceded him, James (21) laid the theoretical groundwork for much that has since been written on that topic. Cooley (6) acknowledged his general indebtedness to James, and certainly the concept of the social self as a reflected or "looking glass" self is directly traceable to James. Similarly, the roots of Mead's (32) "generalized other," Snygg and Comb's (42) preservation and enhancement of the self, and Goffman's (13) perceptive description of the "management of impressions" are found in James' work.

In varying degrees, James (21), Cooley (6), Mead (32), Weber (49, 50), Linton (31), and Goffman (14), in conceiving of the individual and the demands placed on him by others, have advanced essentially a blotter type conception wherein role demands of others are absorbed and lead to the development of self.

There is value in examining a network of interlocking roles in terms of behavior, expectations, or attributes for consensus or dissensus wherein the person is not the focus of interest. There can be no question of the value of such faceless research.

However, in contrast with the above writers, Newcomb (35), Sarbin (39), Ghiselli and Barthol (12), Levinson (29), and Taves, Corwin, and Haas (47) have formulated self-role relations in a manner that permits increased

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reciprocal determination. There will be advanced here, however, a still different view of self-role relations from those proposed by others. In so doing, a conceptual framework for the behavior identified as "rolecentric" will be provided.

B. ORIGIN OF THE CONCEPT

In an earlier study that focused on the critical requirements for the foreman's position, foremen as well as their subordinates and immediate superiors shared with the writer critical incidents in which a foreman had behaved in an outstandingly effective or ineffective way. While there were areas of the behavior described that were common to all three groups, it became clear that the foreman was being judged not only in terms of his functions but also in terms of his judges' functions [Kay (22, 23)]. Following this study and stimulated by contradictions in the literature where the foreman was seen as "key man" *versus* "message boy," "man in the middle," or "management man," additional research was directed to the expectations held for foremen by their immediate superiors, subordinates, staff supervisors, and union stewards [Kay (25)]. The foremen and members of these four groups stated their expectations for the foreman's ideal authority in various areas, his legitimate responsibilities, and the attributes they felt he should possess in the area denoted by leadership. Later they defined their perception of the degree to which they saw foremen as actually meeting their ideal expectations. While there was great variation within each group on the ideal behavior, there was much more on the perceived behavior. Typically, authority items were those wherein the greatest disagreement was shown on the ideal behavior. Alternatively, on the perceived behavior the greatest disagreements were found on leadership items. It also was quite clear that these differences were not random but followed a definite order.

Typically, foremen saw themselves more than any other group as coping, adequate people, and their superiors tended to agree with them. In contrast, the union stewards, particularly a militant third, were the least generous in their perceived attainment of foremen. Stewards saw the least attainment for foremen in areas that touched their roles—for example, on items such as, "acts as spokesman for his men in discussions on policy with his superior." On the other hand, superiors saw the greatest lack in those areas most directly touching their roles—for example, "awareness of overhead expenses chargeable to his department." The general conclusion drawn was that a foreman is best described as a "*central man*" rather than as a man in the middle or marginal

man. He is central within a complex matrix of divergent patterns of expectations that, when met by him, tend to advance, or at least secure, the positions of others in immediate work contact with him.

These results were not entirely unexpected. However, the author was unable to find a term that described the phenomenon, and coined a new word, "role-centric." Rolecentrism is defined as a concern with one's own role such that the role behavior of others is monitored, perceived, and evaluated for its impact on one's self-prescribed role.

A search was made of the literature in an attempt to evaluate the generality of this concept and it appeared that it did have explanatory power in a number of areas, such as occupational ideology, trends in professionalization, studies in social power, and many studies concerned with role relations. It was not difficult, in addition, to observe what seemed to be concrete evidence of rolecentrism in everyday life. A replication in another context, Weinstein (51), and other studies of a pilot nature have since been conducted that further support the usefulness of the concept.

A need for a conceptual framework for additional research in the area has been increasingly evident. While it is true that occasional insightful discoveries occur "by accident," it is more generally held that systematic study within a conceptual framework is more fruitful than such discoveries. The term "map" has been used here to designate a conceptual framework, for a map, while being a representation of the real world (as Korzybski insisted), is not the real thing. In this spirit, the presentation of a new view of self-role interaction is offered.

C. A MAP FOR EXPLORATIONS IN ROLECENTRISM

Figure 1 depicts the preliminary drawing of a map pertaining to self-role interaction. Of the many variations in definitions of the self, one of those proposed by English and English (8, p. 485) is adopted: "The ideas, feelings, and strivings that are recognized, interpreted, and valued by the individual as his own." Central in importance among an individual's ideas are those that are organized into beliefs about the kind of person he is. These beliefs are here conceived as having varying degrees of centrality in, and as a whole defining, the self-concept. Further, these beliefs vary in relation to their reinforced history and as a consequence they vary in degree of personal certitude. The self-concept—and this is in essential agreement with Lecky (28), Snygg and Combs (42), and Rogers (38)—is defended when threatened, and an individual is motivated to enhance his self-concept. While preservation of the

A MAP FOR ROLECENTRISM

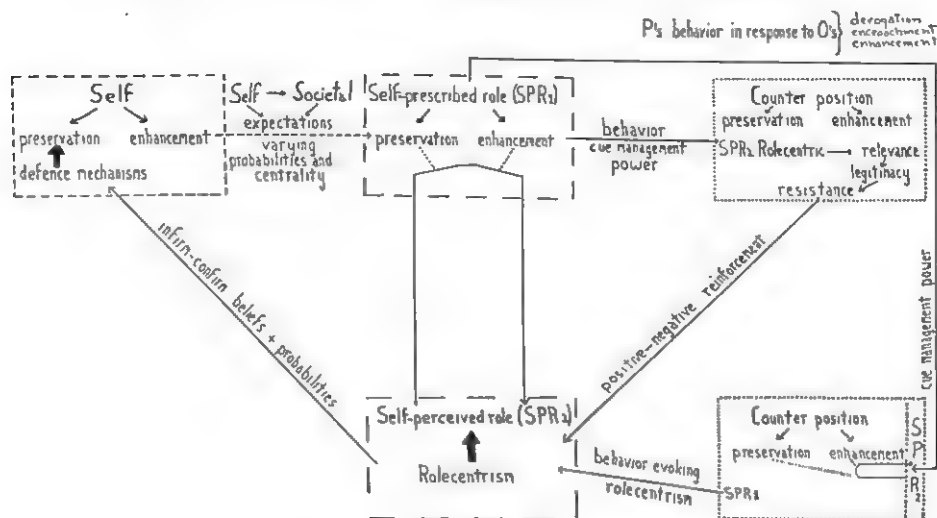


FIGURE 1
A MAP FOR ROLECENTRISM

self-concept may at times dictate or prelude any changes in its elements, the self-concept is regarded as a dynamic organization, a contemporary statement of self, and subject to change.

In our society, the context of work is, if not the most important locus of change in self-concept in adult life, certainly a leading contender. The matter has been nicely stated by Hughes (18, p. 313): "Thus a man's work is one of the things by which he is judged, and certainly one of the more significant things by which he judges himself."

The unique individual in assuming a work role meets an organized division of labor. Sets of tasks serve to define formally the contributions made by given persons and are referred to as positions. A position description may have been written in which tasks, responsibilities, and authority have been defined. An organization chart may show the adopted arrangement of positions. It is well recognized, however, that position descriptions and formal organization charts fail to reflect behavioral patterns accurately. This should come as no surprise, for each individual is unique and no amount of training or authoritarian control can completely eliminate each idiosyncratic contribution.

Relationships among people in different occupational positions can of course

be defined in many ways—for example, in terms of power or personal attraction. The concern here is with roles. Ghiselli and Barthol (12, p. 241) differentiate among four types of roles: "(a) self-prescribed roles (roles that the individual believes he should adopt), (b) self-perceived roles (roles that the person sees himself as actually filling), (c) roles prescribed by others (roles others expect the individual to adopt), and (d) roles perceived by others (roles others see the individual as actually filling)." Their terminology will be adopted, but the conceptual framework will be modified.

The self-prescribed role, henceforth referred to as SPR_1 (see Figure 1), is *not* conceived as the one that an individual "believes he should adopt" (above), but rather as the one he inevitably will adopt because he is the person he is. Beliefs about self combine with the individual's selective perception of the expectations prescribed by others to form a framework for the self in action. *The SPR_1 , then, is a pattern of integrated self-other expectations for himself as the incumbent of that particular position.* The expectations in the SPR_1 , just as with beliefs in the self, vary in centrality or importance. Again, the probability with which the expectations are held in the SPR_1 varies, just as certitude in beliefs varies in the self. Behavior in the enactment of the SPR_1 provides an avenue for experimentation and change in self-concept. *The SPR_1 is held to be greatly more permeable than the self and, in effect, serves not only as a provisional definition of self in action but also as a buffer between self and the realities of interaction in the complex social world of organizational life.* In contrast to what has been referred to above as blotter-type absorption into the self of role demands on the person, the present depiction conceives of SPR_1 serving as a litmus paper test for the self—that is, a tentative investment of beliefs about self as the incumbent of a position and subject to validation by others.

Posited here is not only motivation for the preservation and enhancement of the self but of SPR_1 as well. Hughes, Hughes, and Deutscher (19), in their volume on the role of nurses, provide excellent illustrations of concern with encroachment on nurses' domains and of preservation and enhancement. The literature on professionalization—for example, Caplow (4)—also documents the prevalence of these forces.

Given the SPR_1 , the individual seeks to validate his expectations. In some cases validation may be sought or achieved through alignment with groups or other individuals who are likely to share the self-prescriptions. In complex formal organizations there may be no need for generalized support of the SPR_1 ; rather, validation may be sought through one or more "significant

others." The "significant other" frequently will be the person's immediate superior because of his authority to define expectations and to impose sanctions [Roethlisberger (37); Fleishman (9)].

Once an SPR_1 has been created it becomes, by virtue of the investment of self, something to be defended if threatened, and enhanced when possible. The latter may be accomplished simply as opportunities present themselves or, by design, when situations are arranged by the individual. The words "domain," "bailiwick," "realm," "sphere," preceded by "this is my . . ." are frequently heard. Such statements refer to a person's perceived area of freedom for autonomous decision and control in a given role. In this regard man is no different from other animals. Scott (40) discusses "territoriality" among fish, lizards, and frogs who defend their areas against encroachment from other members of their species. The rich literature on proverbs drawn from most cultures of the world is replete with examples equivalent to an ascending scale of warning against encroachment. "When one shuts one's door one is emperor of one's own kingdom." "You kill your fleas and I'll kill mine." "Love your neighbor but do not lay aside the stick." "Before doctoring others the doctor should doctor himself." "He who steals a fish from his neighbor's net will get a bone in his throat."

According to the above map, one would expect that, with differences in autonomy and control among occupations, differences in job satisfaction will be found. Herzburg, Mausner, Peterson, and Capwell (17) reviewed almost 2000 studies of job satisfaction and showed conclusively that the higher the occupational prestige level, the greater the job satisfaction. In general, the higher the occupational level the greater is the opportunity for self-determination. Further, and consonant with the above, one would expect people to express desires for freedom in doing their work their own way and for consultation in changes affecting their job. This appears to be the case [Strong (46)]. In the same context, where the area of study concerns relations between supervisors and their subordinates, and the former can affect the latter's autonomy, it is to be expected that general rather than close supervision will be seen as associated with "good supervision." Here, too, such seems to be the case [Likert (30)].

Commitment of self to a role is a relative matter. It is a function of the number and strength of beliefs about self that are engaged in a particular SPR_1 . The probability with which the related expectation is held is a function of the strength of the belief (function of its reinforced history) and the perceived power behind the differing expectations of others in counter positions. Thus, the stronger the belief and the weaker the perceived power of another in a

counter position, the higher the probability with which the related expectation will be held. In the present use of the word "power," Secord and Backman's (41, p. 283) summary statement is followed: "The power of P (person) may be defined in terms of the resistance that O (other) has to P's efforts to influence him, which in turn is a function of the dependency of O upon P. O's dependency is directly proportional to his interest in satisfactions provided by P, and inversely proportional to the availability of these satisfactions outside the relation."

The power of a group in a counter position—for example, to a foreman—is in part a function of the agreement that exists among them for an expectation. Thus, when his subordinates are divided among themselves on an expectation, a foreman has increased maneuverability and they as a group have decreased power. Parenthetically, it is clear that delegated authority is not equivalent to power as defined above. A foreman's power is, for example, in part dependent on the influence he can wield with his superior, as has been shown by Pelz (36).

In the past, consensus in expectations for a role was an implicit assumption. However, with the significant shift from theoretical discussion to empirical study, most reports attest to the variability in expectations among role-definers. Consensus means agreement—for example, of opinion—but in general usage the word is commonly used to denote not agreement but the opinion held by a majority. It is improbable that consensus in the former sense exists for *any* role. The present concern is with the amount of agreement existing for a role expectation in a particular group. Furthermore, abundant evidence attests not only to the variability in role definitions *within* a group but *among* groups as well. It is a basic assumption in the map of rolercism that this is the general case and not an exception. This is not to say that there is no agreement in role expectation, for without some expectations being commonly held there would be no basis for the concept of role.

If there is lack of agreement in expectations for the incumbent of a position, both within and among groups with whom the individual has work relations, he has little choice but to prescribe a role for himself. The SPR_1 as discussed above is then a pattern of integrated self-other expectations held by an *individual* as the incumbent of a particular position. Viewed from outside, it is abundantly evident that individuals holding the same job—for example, foremen—do in fact have their own special styles of supervising their men, and it can be assumed they are reflecting their individual SPR_1 s.

If persons who are about to assume new positions have some advance knowledge of their duties and authority, and this is probably more often the case

than not, it is instructive to note individual differences in the degree to which they appear to prestructure their roles. Some sail in with supreme confidence and, of those, some do so with closed minds. Alternatively, some are most tentative in their structuring and may be heard to make comments such as, "I'll play it by ear for a while." It was suggested above that the SPR_1 may serve as a buffer between self and the realities of social interaction. One can note in this context advance insulating remarks such as, "I know that I will make mistakes."

An individual behaving in the light of his SPR_1 engages in cue management with varying degrees of awareness of his actions and motives. The presentation below draws heavily on the analysis of management of impressions presented by Goffman (13). In social interaction individuals strive to convey certain impressions to others by giving off selected cues, such as gestures and by arrangement of settings. While variously motivated, the intent of this management of impressions is to control the behavior of others, particularly their responses to this behavior, and thus to influence their conception of the individual and his role. When power relations are unfavorable to the person, or are ambiguous, cue management becomes a vital force in the attempted validation of relevant expectations in the enactment of the SPR_1 . It may be that some individuals are so expert in cue management that they receive rewards for their performances not validated by performance on objective criteria. Turner (48), in one of the rare studies of supervisors using both objective measures of performance and rating scales, found that "job performance reputation" was primary and that there was little correspondence between objective measures and subjective ratings of supervisors by their superiors. Further support for this is found in Kay (24); in this study the superiors of foremen were shown to be unable to distinguish reliably between two behaviors likely to be descriptive of a particular foreman. This is not meant to advance the view that people are fooled all the time, but rather to suggest that some performers simply may validate their SPR_1 by being expert in cue management.

The test of a successful performance in cue management and the reality testing of the expectation from the SPR_1 lies in its registration and evaluation by others. As shown on the above map, the person in a counter position who is potentially rolecentric, and who also is concerned with preservation and enhancement of *his* SPR_1 , relates the behavior to his framework for *relevance*. If not relevant to O's SPR_1 , P's behavior is not challenged and the usual social or task orientation dictates the response. Alternatively, if P's behavior is perceived as relevant to O's SPR_1 , consideration is also given to the *legitimacy* for P to

behave in that particular way. In either case, resistance to P's behavior may be aroused, and acceptance or rejection will be determined by O's perception of his power relative to P's power.

The person who has acted in the light of his SPR_1 in relation to someone in a counter position is, in varying degrees, open for registration of feedback in the form of positive or negative reinforcement. Ghiselli and Barthol (12) refer to self-perceived roles, by which they mean "roles that the individual sees himself as actually filling." A modification is necessary to locate rolecentrism in relation to other features of the map. The self-perceived role (SPR_2) is used to denote *an awareness of self in action in pursuit of the SPR_1* . Monitoring, perceiving, and evaluating the behavior of others suggest conscious activity. While the author is not precluding those occurring at an unconscious level, his immediate concern is with this conscious registration of the results of SPR_1 -based behavior. Positive-negative reinforcements, as shown on the map, feed back to the self via the SPR_2 in the form of infirming-confirming beliefs about self, and probabilities with which those beliefs are held in the SPR_1 . Stogdill (44, p. 95), having reviewed the literature about differential effects of reinforcement on valued expectations and probabilities, concludes ". . . that value dominates probability in the early stages of expectation, that value continues to maintain expectation when probability estimates are not confirmed, that probability estimates tend to assume a level which corresponds with the objective probability of reinforcement, that expectations become more realistic as the probability of outcomes increasingly exceeds the level of chance occurrence, and that unrealistic expectations undergo a higher degree of generalization than do realistic expectations." Positive reinforcement confirming a relevant belief in the self and SPR_1 that has been tested in interaction with others increases the probability with which the related expectation in the SPR_1 is held. Negative reinforcement serves to reduce the probability with which the expectation is held in the SPR_1 . The self is held to be much less permeable than the SPR_1 and associated beliefs more difficult to infirm. As indicated on the map, defense mechanisms must be penetrated before any change in self can occur.

As noted above, expectations in the SPR_1 vary in importance or centrality and, in general, the more important the expectation, the less the reinforcement necessary to confirm it and the more the negative reinforcement necessary to infirm it. The statement was made earlier that the SPR_1 can serve as a buffer between self and realities of interaction in a complex organization. By holding, in the SPR_1 , self-other expectations with varying probabilities, the individual is in effect protecting himself from premature investment of self in the role. Feedback from others then serves to refine, define, and redefine which beliefs

about himself he can with confidence invest in the role. This viewpoint is consistent with the changes in personality that are believed to result from prolonged enactment of a role [Merton (33)].

As can also be seen on the map, the evocation of rolecentrism leads, via the SPR_2 , to concern with preservation and enhancement of the SPR_1 . Mustering what power he has, P responds to O's behavior and the cycle begins again.

Rolecentrism can be seen in a somewhat different light by examining the above cycle from another point of origin. As noted by Kay (26), Cason's (5) collection of 21,000 annoyances and irritations were remarkably free of role-related activities; and the present author has found that people, when asked for examples of behavior that annoy them, typically give examples similar to those provided by Cason. However, when asked to assume their formal work role and to think of people in counter positions and related behavior that annoyed them, the same respondents were able to shift gears with great ease and to give incidents involving derogation of their role, or to describe encroachments on their perceived domains (SPR_1). Asked to recount incidents of positive behavior of people affecting their roles, their responses were readily grouped under the heading of enhancement. As Hughes (18, p. 316) has noted, ". . . even in the lowest occupations people do develop collective pretensions to give to their work, and consequently themselves, value in the eyes of each other and of outsiders."

In the general case, man at work is seen as task-oriented and not rolecentric. This state is evoked when another derogates, encroaches on, or enhances the SPR_1 . Rolecentrism is a relative term, however, and extremes will be identified as hyper- or hypo-rolecentric. In the former case, an individual is vigilant to the point that he is unable to perceive clearly another's role, and conflict and communication failure are to be expected. In the latter, so little commitment of self exists in the role that the person may be considered to have abdicated it or never to have had an SPR_1 . Workers described by Argyris (1) as alienated and noninvolved appear to fit rather well into this latter group. A plot of effectiveness in performance against degrees of rolecentrism would, according to the views presented here, approximate the normal curve.

D. REFERENCE OF CONCEPT TO OTHER STUDIES

It is contended that the above map can explain parsimoniously the following illustrative studies among many others: (a) differential responses of teachers and mental hygienists to classroom behavior of school children as originally presented by Wickman (53) and as replicated by Stouffer (45); (b) Foley and Macmillan's (10) demonstration that medical and law students give

selective associations to words, such as "administer," while others do not; (c) Dearborn and Simon's (7) report that executives respond with selective perceptions to a case study where solutions are seen in terms of ". . . those aspects of the situation that relate specifically to the activities and goals of his own department" (a replication and extension of this study has been reported by Korman (27)); and (d) Fulton's (11) report that clergymen see encroachment on their domain by funeral directors. Further evidence can be found in studies of (a) collective bargaining by Whyte (52); (b) resistance to therapy by Sobel (43); (c) power relations among the members of a psychiatric team by Zander, Cohen, and Stotland (54); (d) community health workers "proving" themselves in Griffiths (15); (e) avoidance of professional workers "treading on each others' toes" by Mill (34); (f) role-perceptions of labor and management in Haire (16); and (g) and role encroachment by clinical psychologists on the nurse's domain, on becoming ward administrators, as studied by Ishiyama, Denny, Prada, and Vespe (20).

E. SUMMARY

An individual holds expectations for himself as the incumbent of a position. These expectations are formed from an interaction between beliefs about self and the individual's perception of societal prescriptions for any incumbent of the position. In a patterned combination, the expectations define the self-prescribed role that then serves to structure behavior for the self in action. The self-prescribed role is viewed as experimental and modifiable. The expectations are held by the person with varying probabilities and reflect varying degrees of centrality in the system of beliefs about the self and of the perceived power of others to enforce their expectations. The person is motivated to preserve and enhance both the self and the self-prescribed role (SPR_1). Behavior in accordance with the SPR_1 carries with it a defined degree of power as perceived both by the person and the other in a counter position. In support of his enactment he consciously or otherwise engages in cue management. If P's behavior is perceived by O as not being relevant to O's SPR_1 , there is no challenge to the enactment. If rolecentrism is evoked in O, however, the behavior is seen as relevant and, whether he perceives it to be legitimate or not for P to behave in that way, he mounts resistance. The acceptance or rejection of the behavior of P is a function of the degree of O's perception of dependency on P. If the behavior is accepted by O (not necessarily requiring an overt act), then P, who perceives himself in action (the self-perceived role, SPR_2) and who is rolecentric, registers his performance as validated through the positive reinforcement provided by O. In turn, the confirmation is fed back to the self,

tending to confirm the relevant beliefs, and from that comes an increase in the probability with which the relevant expectation is held in the SPR_1 . In the event of a series of negative reinforcements, a belief about self may be infirmed. For this to occur, however, the event must also permeate any defense mechanisms the person employs.

More likely, negative reinforcement of the act emanating from the SPR_1 will change the probability with which the nonreinforced expectation is held. Rolecentrism is evoked when (as given in the definition of that concept), after monitoring, perceiving, and evaluating another's behavior, it is seen as having an impact on one's SPR_1 . Any behavior that is perceived as derogation, encroachment, or enhancement is a sufficient stimulus for evocation of rolecentrism.

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SOME RELATIONS BETWEEN DOGMATISM, DENIAL, AND DEPRESSION*

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A. INTRODUCTION

There have been many studies of adjustment of the blind of all age groups over the years. Most of these studies, reviewed by Barker, Wright, Myerson, and Gonick (1), were attempts to find differences between blind and sighted groups and were, for the most part, unsuccessful. Bauman (3), Fitting (8), and Zarlock (16) developed instruments that were used to measure personality traits of adjusted blind individuals compared with nonadjusted, but Dean (6) returned to the old search for factors attributable to blindness itself. In the rehabilitation area, understanding clients and how they adjust socially and psychologically to disability is of prime importance. It would, therefore, seem more fruitful to examine subjects on an adjustment-nonadjustment continuum than on the basis of their disability. This paper presents some findings of an exploratory study of the relations between the three variables of dogmatism, denial, and depression, with special reference to Rokeach's (14) theory of dogmatism. The emphasis of the study was on the effect of dogmatism on the ability of blind persons to establish emotional equilibrium after disability.

Previous studies [Nemiah (13), Litin (12), and Cholden (5)] suggest that severely disabled persons follow a pattern of readjustment that starts with an initial shock, followed by grief and mourning, before equilibrium is again established. The theoretical framework developed in this study took anxiety as the key factor of emotional reaction to loss. Disability is a stress that tends to create helplessness, dependency, and frustration, all of which tend to heighten anxiety to uncomfortable levels [Barron (2), and Dembo, Leviton, and Wright (7)]. Individuals will cope with anxiety by using whatever defense mechanisms are readily available to them, or which are accustomed behavior patterns. Denial, as a defense mechanism, is characteristic of high-dogmatic persons (14). High-dogmatic individuals, therefore, could be ex-

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pected to show more denial in stress situations than persons having a lesser degree of dogmatism.

As many investigators have pointed out, some amounts of depression and mourning are assumed to be signs of acceptance of severe loss. Denial and inhibition of affect, on the other hand, are taken to be indications of lack of acceptance of loss. Hypotheses were made that these two conditions should be related functionally to Rokeach's concept of dogmatism (i.e., that disabled persons who are using denial and repression extensively should be high-dogmatic, while those who show other symptoms of loss, such as genuine mourning and depression, should be less dogmatic).

Also examined were the factors of gradual, as opposed to sudden, onset of disability, and their relationships to degree of dogmatism. Sudden onset is similar to Rokeach's so-called "Silver Platter" phenomenon, in which he found in an intellectual, problem-solving situation that high-dogmatic subjects can accept new material as quickly as less dogmatic subjects if the facts are presented all at once. The question was, would Rokeach's findings hold up in real life situations so that sudden onset of blindness would cancel out the effects of high-dogmatic tendencies with respect to acceptance of loss?

The following hypotheses were examined:

1. High-dogmatic persons deny their disability, its cognitive implications, and their feelings about it.
2. Less dogmatic persons tend to show depression as a reaction to the disability.
3. In blind persons who experience gradual onset of disability, dogmatism is positively related to denial tendency; whereas in those persons experiencing sudden onset there is little relationship between dogmatism and denial.

B. METHOD

Thirty-two blind men between the ages of 18 and 62 years were interviewed at rehabilitation centers in three states. All were Caucasian, adventitiously blind, and scored in the normal or higher range of intelligence on the Wechsler Adult Intelligence Scale. One-half of the group (mean age 37.0) experienced sudden onset of blindness, and the other half (mean age 35.0) experienced gradual onset. All subjects were legally blind: approximately one-third were totally blind or had light perception only, one-third could count fingers at one to 10 feet, and one-third had residual vision enough to travel independently in the daylight.

Rokeach's Dogmatism Scale was administered to each subject to obtain a measure of the independent variable. Two rating scales, a Behavioral Denial

Scale and a Behavioral Depression Scale, were developed for the study. The scale items were adapted from work by Shworles (15), Fitting (8), and Dembo, Leviton, and Wright (7). Each scale contained 12 statements to be rated on a five-point continuum from "seldom" to "most of the time." The items were descriptive of denying or depressed behavior (e.g., "refuses help" or "shows no interest in food"), as staff members working with the individuals would have occasion to observe. The scales were validated by the Nomination Technique (9) on a population of spinal cord injury patients ($N = 13$) in a Veterans Administration hospital. Subjects were rated as being either depressed or denying by two staff members, who knew the subjects well. The behavioral scales were later filled out by other staff members, and the significance of the difference between the means of the criterion groups analyzed by t test. For the Behavioral Depression Scale, $t = 2.13$, significant at the .05 level. For the Behavioral Denial Scale, $t = 11.39$, significant at the .005 level.

C. PROCEDURE

All subjects were recruited through rehabilitation centers for the blind. It was, therefore, possible to find two staff members who had had close contact with each individual. These agency staff members were asked to fill out independently the Behavioral Depression Scale and the Behavioral Denial Scale, and reached an overall reliability coefficient of .82 and .90, respectively. After administration of the Dogmatism Scale, semistructured interviews were tape-recorded with each subject. The questions probed at the feelings and beliefs the subject had about his blindness and its effect on him. Areas asked about were (a) how the subject had felt about blindness before he lost his sight; (b) whether people treated him differently now; (c) whether he felt sorry for any of the blind people around him; (d) whether he would like to be called brave or courageous; (e) what were the most difficult things to get used to; (f) what he was doing for recreation or fun; (g) whether he blamed himself or anyone else for his disability; (h) whether he ever felt angry, sad, or disorganized; (i) whether he tried to keep busy to forget his blindness; (j) how he felt about accepting help; (k) whether he had beliefs in supernatural or pseudomedical cures; (l) what difference the disability would make in his life; and (m) what plans he had for the future.

Two clinical psychologists, experienced in rehabilitation, reviewed these interviews and rated each subject on his overall denial and depression tendencies. Two seven-point scales, a Global Depression Scale and a Global Denial Scale, were used to give a numerical value to their ratings. The judges were

given information about the subject's age, education, marital status, diagnosis, and prognosis, on which they based judgment of denying tendencies. The diagnoses, except in accident cases, did not necessarily reveal whether the onset had been sudden or gradual. The result was a global denial and a global depression score, as well as a behavioral denial and a behavioral depression score, obtained independently from agency staff, for each subject. Scores were then correlated with each subject's dogmatism score.

D. RESULTS

1. *Acceptance of Loss*

Table 1 presents the product moment correlations of the variables examined in the first two hypotheses. For both the behavioral (depression and denial)

TABLE 1
CORRELATION OF DOGMATISM SCORES WITH BEHAVIORAL AND
GLOBAL DENIAL AND DEPRESSION SCORES

| Scale | N | r | p |
|---------------------------------|----|------|--------|
| Dogmatism-Behavioral Denial | 32 | .66 | < .001 |
| Dogmatism-Global Denial | 32 | .42 | < .01 |
| Dogmatism-Behavioral Depression | 32 | -.52 | < .002 |
| Dogmatism-Global Depression | 32 | -.43 | < .01 |

measures, and the global (depression and denial) measures, there was a positive relationship between denial and degree of dogmatism and an inverse relationship between depression and degree of dogmatism. Scores based on description of behavior attained higher correlation than scores derived from interview material, a finding believed to be partly due to the judging process. The judges, in rating the interview data, were required to make an overall rating of the client on the variables of depression and denial, and errors of central tendency and leniency may have distorted the ratings.

2. *Onset of Disability*

The authors hypothesized that gradual onset of blindness would provide a condition favorable for denial: i.e., those individuals experiencing gradual onset were expected to show a positive correlation of dogmatism with denial tendency. Table 2 gives data supporting the hypothesis, behavioral score correlations being significant ($p < .02$) for the gradual onset condition only.

E. DISCUSSION

Rokeach *et al.* (14) suggest that the closed-minded person is so because of childhood anxiety; he defends himself by closing his belief system. It is suggested here that persons using denial and repression as major defense

mechanisms will continue to use such defenses when stricken with disability. On the other hand, low-dogmatic persons do not have a lifelong pattern of avoiding anxiety and pain by denial and repression. They are not prone to see threat in every aspect of their environments. Furthermore, their belief systems do not lend to compartmentalization and isolation, and consequently facts presented to them are worked through the entire system. It is not possible for them to deny some of the facts of the disability and accept others. They must accept them all.

Zarlock (16) noted the correlation of high *F* scale scores with tendencies of blind subjects to hold beliefs about magical cures. He suggested that reaction to authority was the common psychological factor explaining the correlation,

TABLE 2
CORRELATION OF DOGMATISM SCORES WITH BEHAVIORAL AND GLOBAL DENIAL AND DEPRESSION SCORES FOR SUBJECTS GROUPED ACCORDING TO ONSET OF DISABILITY

| Group | <i>N</i> | Dogmatism-Behavioral Denial | Dogmatism-Global Denial |
|---------------|----------|-----------------------------|-------------------------|
| Sudden onset | 16 | .51 | .45 |
| Gradual onset | 16 | .75 | .47 |

and considered medicine and religion as "specific domains of authority." However, Chodoff (4) suggested that the beliefs in pseudoscience and pseudomedicine held by his multiple sclerosis patients were a denial of the implications of their disability. Beliefs in miraculous cures and supernatural intervention were prevalent among the high-dogmatic subjects of the present study. As the *F* scale correlates highly with the Dogmatism Scale (14), it would appear that the necessity to deny anxiety is the common factor in Zarlock's study as well as this one.

Lefcourt (11) reported significant differences between groups of hospitalized narcotic addicts in degree of dogmatism when they were categorized by test battery as psychotherapy candidates, milieu treatment cases, or possible psychotic cases. He assumed that the continuum basic to the three groups represented an openness to change.

F. IMPLICATIONS

Lefcourt's results in the diagnostic area, and Kemp's (10) findings of the relationship of dogmatism to receptivity to counseling suggest that the variable of dogmatism may be a useful tool for clinical practitioners. It can add to efficient screening of patients in rehabilitation, by predicting openness to change and assessing of the depth of the patient's acceptance of loss. A disabled person coming for assistance some time after onset of disability may

show a rather euphoric attitude that he could have regained after mourning his loss, or that may be a demonstration of his denial. A high dogmatism score would point to the latter probability, while a low or middle score would make the former more likely. A newly disabled person showing deep or agitated depression may be psychotic or deeply disturbed, or he may be a very open-minded person who cannot deny or forget the misfortune and its implications for a moment and thus suffers intensely. It should be noted, of course, that only scores at the extreme ends of the distribution are valuable in this respect.

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ROLE DIFFERENTIATION AND STYLE PREFERENCES*

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A. INTRODUCTION

Most studies on the sociological determination of art style represent a somewhat undifferentiated approach. Art style is related either to characteristics of whole societies or of complex groupings, such as social classes, rural or urban communities, and artistic reference groups. For this reason, sociological research has not contributed much to explaining individual variations in style preference *within* large social groupings. On the other hand, experimental psychologists (as well as some sociologists) have collected a good deal of evidence on artistic preferences associated not only with social class, but also with sex differences, vocational interests, types of academic training, and so on. However, the psychologists may not have extracted as much theory from their data as seems to be implicit therein, partly because they have not attempted to relate their experimental data systematically to cross-cultural (anthropological and art-historical) frameworks.

It is suggested that role theory can provide a basis for a theoretical integration of these bodies of data. Toward this goal, four tentative hypotheses on relationships between the instrumental-expressive dimension¹ of role differentiation and preferences of style in visual art will be offered.

B. THE NATURALISM-ABSTRACTION DIMENSION

The initial hypothesis is that a preference for "abstraction" will be associated with expressive roles, and a preference for "naturalism," with instrumental roles, when these artistic alternatives are available in the cultural environment. The hypothesis can be supported by evidence from experimental psychology. Cardinet has discovered that "introverted persons with a passive, subjective attitude preferred modern and more abstract paintings," whereas

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¹ The distinction between instrumental and expressive roles hinges on (a) the extent to which a role is oriented toward adaptation to the external environment as against internal integration of the social system of which it is a component, and (b) the extent to which affective neutrality is required from a role occupant in the performance of role obligations. Instrumental roles are high, and expressive roles low, on both *a* and *b* (24).

"practical type persons with an active orientation tend to prefer realistic representations of objects and people" (5, p. 114). The first type may be presumed to seek more expressive, and the second, more instrumental roles.

Again, in a study of American college students, Knapp and Wulff found persons high in aesthetic value on the Allport-Vernon-Lindzey test to favor abstract art (18). Furthermore, "preference for abstract painting is related to . . . musical and literary [vocational] interests as opposed to managerial and manual callings." In general, "preference for abstract paintings appears to be associated with qualities of subjectivity and hypersensitivity . . ."—personality characteristics presumably "feeding" into expressive rather than instrumental roles. The preference for abstract art is also associated with higher social status (18, pp. 260-262). This may be accounted for in part by a more expressive conception of widely held roles, such as those of father or college student, among higher status individuals (21, p. 109; 6, p. 15). The popularity of abstractionism in 20th-century American art, as well as the increasing artistic interest in general, is correlated with increasingly expressive definitions of the male role (15). That abstractionism seems to appeal more to the "new" industrial than to the "old" commercial middle classes (12), and that the intellectual rather than the commercial sectors of the bourgeoisie have tended to pioneer in its acceptance, seem to re-enforce this interpretation.

The hypothesis is also supported by anthropological evidence suggesting a tendency toward specialization of women in "geometric" (generally simpler and not explicitly symbolic) styles (25, p. 2097; 7, p. 350), and of men in "naturalistic," "realistic," or "representational" (generally symbolic and expressionistically distorted) styles. This is reported for the northwest coast of America (3, pp. 183, 289-294), the American plains (27, p. 355), in African murals (7, p. 350), among the Arapesh (22, p. 59), among the Caduveo of southern Brazil and Paraguay (19, p. 256), and presumably in the Neolithic era as well (8, Vol. I, p. 23; 9, p. 108). The sex-linked differentiation of artistic style may be explained by the near-universal tendency for women to be ascribed expressive roles and for men to be assigned instrumental roles in the family system (28).

Thus several kinds of evidence converge to provide support for the hypothesis that *the occupancy of, or preference for, expressive roles is associated with a tendency to favor more abstract styles of visual art; the occupancy of, or preference for, instrumental roles, with a tendency to favor more naturalistic styles* (Hypothesis 1). A possible interpretation of this correlation might be to suggest that the occupancy of instrumental roles causes (or attracts persons with) a predisposition to deal, both in action and in fantasy, with

things,² with the world of tangible objects; whereas the occupancy of expressive roles causes (or attracts persons with) a predisposition, both in action and in fantasy, to deal with feelings or attitudes toward things, with the world of intrapsychic objects. An orientation toward states of mind and emotion rather than things may provide the linkage between expressive roles and abstract styles.³

C. THE CONTROL-SPONTANEITY DIMENSION

A second general hypothesis on the relationship between style preferences and the instrumental-expressive role differentiation can be derived from two experimental studies on the style preferences of American art and nonart students. Art students of both sexes have less liking than other students for "a clear geometrical style . . . with . . . curvilinear features" and "relatively unmodulated colors"; they prefer "massive configurations without obvious geometric rationalization and embodying an impetuosity of style . . . with a . . . bold and deliberate effect" (10, pp. 290-291). The figure drawings favored by art students are also asymmetrical, restless, and moving in their effects (1).

In these comparisons, the aspirants to professional instrumental roles prefer more "rationally controlled" styles, and the aspirants to professional expressive roles, more "spontaneous" styles. This can be explained by the requirement for greater emotional restraint imposed on the occupants of instrumental ("affectively neutral") than on the occupants of expressive ("affective") roles (23). The anticipation of these requirements is a selective factor in motivating different types of personalities toward the assumption of the two kinds of roles. Differences in artistic preference are presumably due to the variations in personality that also determine occupational preferences.

If the instrumental-expressive role differentiation is generally associated with preferences for control or spontaneity in art style, two applications to complex historical situations may be suggested. It can perhaps be taken for granted that the bourgeoisie has historically tended to assume more instrumental roles than the nobility. Spontaneity, however, is generally prevented in upper-class art by the requirement that it project the dignity or refinement

² This is probably especially true when manual work is involved (*cf.* 18, p. 262). Conceptually oriented instrumental roles should be more congruent with a preference for abstract styles.

³ According to an impressionistic observation of the author's wife, who has been teaching art to amateurs in a provincial town, middle-class wives are less resistant than their husbands to being taught to paint in a more abstract manner, so long as it is not nonrepresentational.

of the aristocratic way of life. This is particularly evident in feudal periods when the nobility still has significant instrumental responsibilities (*cf.* the Romanesque). However, the art of an established but politically and economically functionless upper class (e.g., the Rococo) tends to be less subject to rational control than the styles associated with a politically aspiring middle class (e.g., 18th-century French classicism). It is an aspiring bourgeoisie that places an especially strong stress on instrumental role definitions as one of the characteristics by which it distinguishes itself from the "decaying" aristocracy.

Assuming that Calvinism has been historically linked with a more instrumental definition of social roles than Catholicism, the hypothesis is supported by the more rationally controlled quality of the 17th-century Dutch than of the Flemish Baroque. While the difference may be due either to the class factor just identified or to religious differences, or to both in conjunction, the present hypothesis would be borne out in either case.

Thus both psychological data and two strategic art-historical comparisons give support for the hypothesis that *the occupancy of, or aspiration to, instrumental roles is associated with more controlled styles of visual art; and the occupancy of, or aspiration to, expressive roles, with more spontaneous styles* (Hypothesis 2).

D. THE EXAGGERATION-SUBDUAL DIMENSION

A third third set of data, derived from studies of sex-linked preferences for styles of abstract art, suggests the hypothesis that *instrumental roles are associated with predispositions toward exaggeration of effect by either "over-control" or "over-emotionality," while occupants of expressive roles tend toward a moderate subduing of effect in artistic style* (Hypothesis 3). It has been demonstrated, in an American collegiate population, that women tend to avoid both "extreme geometricization" and "the impulsive handling of line and mass with striking effects," though (presumably because of their occupancy of expressive roles) they tend more toward impulsiveness than geometricism. Women also prefer subdued and colder colors, green and blue (10), although this may not be specifically related to the instrumental-expressive differentiation.⁴ In general, "women prefer the less powerful, the bounded, and the controlled" forms and "the softer, the more modulated, and controlled, rather than the expressive" tones and colors (10, p. 300).

The suggested interpretation of Hypothesis 3 is that instrumental roles, by

⁴ A preference for green and blue is also associated with a high need for achievement (16) and an inclination toward scientific vocations (17).

requiring suppression of spontaneous feeling and its subordination to purposive rationality, may cause a compensatory tendency toward intensified reassertion of emotionality (which may be limited to particular spheres of sociopsychological experience, such as religion or politics, while one remains "rational" in the occupational sphere). The occupancy of instrumental roles, or their dominance in a social system, would thus be associated with preferences for *either* rigid classicism (David) or geometricism (Mondrian), suggestive of subordination of feeling to rationality, *or* exuberant romanticism (Géricault) or expressionistic distortion (Van Gogh), evocative of revolt of suppressed emotionality against the tyrannical hold of sober reason. In contrast, a co-ordination of feeling with reason, such as is necessary in all *realistically defined* expressive roles,⁵ may tend to produce a balanced tendency toward "reasonable sensibility" in artistic expression.

In urban civilizations, the most definite representatives of the "exaggerated" styles have lived in periods of ascent or dominance of the middle class, and have appealed to middle-class audiences. Subdued sensibility is more characteristic of the arts of mature, established aristocracies (the Rococo, the Rajput painting in India) and similar patrician groups (as in Venice) than of the middle classes. It has been suggested before that the middle classes develop more instrumental role conceptions than do established aristocracies.

It is tempting to speculate that the subdued sensibility of the traditional art of the Latin nations, especially Italy and France, reflects a more expressive definition of the male role, including that of the professional artist; whereas the intensified expressionism of Germanic art may be a reaction to more instrumental role definitions. However, additional variables must be considered in international comparisons of artistic traditions. The art of Spain, for example, also exhibits expressionistic tendencies. Perhaps more restraint upon spontaneous expression of feeling is imposed upon Spanish than upon French or Italian males by a more stylized conception of culturally appropriate behavior. But the expressionistic tendencies in Spanish art could also be explained by a relatively disharmonious image of the universe, that tends to produce artistic deformation (14). English art, on the other hand, has until recently (except in the "popular" engravings of the 18th century) not tended toward expressionistic distortion. It can only be speculated whether this is not because of a strong dominance of the artistic taste of an established Anglo-Catholic aristocracy, which, on the one hand, has frequently assumed expressive roles,

⁵ There is an apparent asymmetry between the two roles. The occupant of an instrumental role can largely exclude spontaneous emotionality, whereas if he occupies an expressive role he cannot suppress purposive rationality to the same degree.

and, on the other, has not conspicuously adhered to a disharmonious conception of the universe (in contrast to middle-class Puritans and Methodists).

The relationship between Puritanism and art is an interesting one. Puritans tended to reject art, and even their secularized descendants have for a long time failed to develop a real response to it. The latter were therefore willing to "buy" foreign styles that were not necessarily congenial to the preferences that they would have spontaneously expressed, if they had been interested in art. However, the Puritan settlers of New England cared for one kind of art, that of tombstone carving. And where they had freed themselves from European Baroque models, in the backwoods of 17th-century New England, they gave way to their natural tendency, as occupants of highly instrumental roles, toward "over-control" and developed an extremely geometricized representational style (20). On the other hand, when their secularized descendants began to care about art in general, they created the "over-emotional" style of Abstract Expressionism, which was the first kind of art to which there was a really intense response in the United States (11).

While Hypotheses 2 and 3 partly overlap, it seems possible to account for both of them by the unified interpretation that culturally legitimated affectivity tends to be subdued in its modes of expression, whereas reaction to culturally imposed affective control produces "expressionistically" exaggerated effects. Therefore, roles in which more affectivity is permitted (Catholic, female, leisure class, Latin) will give rise to more "subdued" artistic behavior, whereas roles in which more affective restraint is imposed (Calvinistic, male, commercial and artisan class, Germanic) will produce tendencies toward "extreme deviation" in the direction of over-control or emotional intensification.

E. THE COMPLEXITY-SIMPLICITY DIMENSION

Two studies on style preferences have suggested the hypothesis that *instrumental roles will be associated with preferences for more complex styles of art; expressive roles, with preferences for less complex styles* (Hypothesis 4). The hypothesis is weakened by the circumstance that neither study has related artistic preferences to actual occupancy of the two kinds of roles.

In the first study, by Barry (2), of 30 preliterate societies, severity of socialization was found to be directly associated with complexity of design in art style. Self-reliance training and punishment for dependency were particularly closely correlated with artistic complexity. Assuming that these kinds of independence training produce a predisposition toward instrumental roles (a hypothesis based on the circumstantial evidence that males, who receive more

independence training than females, also assume more instrumental roles than do females), we come to expect instrumental roles to be linked with artistic complexity. It may be noted that the "geometric" styles employed by women in preliterate societies referred to previously tend to be simpler than the more "naturalistic" styles cultivated by men.

Evidence directly supportive of the proposed hypothesis is provided by Knapp and Hoffman (17). In a sample of 90 American college freshmen and sophomores, Knapp and Hoffman found that interest in scientific vocations, as measured by the Strong Vocational Inventory, was associated with a preference for more complex (open) tartan designs. Conversely, interest in salesmanship was linked with less complex (closed) designs. In this comparison, salesmanship may be regarded as the more expressive role alternative. Indeed, Knapp and Hoffman (17, p. 305) interpret their findings as suggesting that the complex designs will be preferred by "individuals eager to keep their environment under maximum control, distrustful of emotional forces, and of introverted . . . disposition." Such individuals seem likely to prefer instrumental roles. The less complex design is favored by those who "welcome emotional involvement . . . avoid socially isolated . . . callings, and . . . stand committed to an extrovert life." Presumably, they would also choose more expressive roles.

Another study, by Eisenman and Coffee (4), suggests a directly opposite relationship. In this study, art students preferred asymmetrical polygons, while mathematics students preferred symmetrical polygons. Insofar as asymmetrical polygons constitute more complex formal patterns, aspirants to expressive occupational roles would seem, in this case, to prefer *more* complicated forms. Artists also favor the more complex figure drawings (1).

In yet another study, art students judged as more creative preferred and produced more complex polygons (26). This suggests the interpretation, which may be adequate to account for most of the observations cited in this section, that the personality characteristic of *independence* (which is presumably conducive to creativity as well as to the choice of natural science rather than salesmanship) is associated with preference for complexity in art style.⁶ Since independence training has also been shown to be related to artistic complexity, only the Eisenman and Coffee (4) findings bear an un-

⁶ Individualistic cultural orientations have been linked with complexity in art style (13). Individualistic values and personality dispositions toward independence are obviously related. However, authoritarian (lineal) values also seem to be associated with complexity in style. This may reflect the fact that occupants of positions of authority, in cultures with highly lineal values, can afford to be independent (without permitting others to be so).

certain relationship to the present interpretation, though even they do not necessarily contradict it. (Students of mathematics may actually be characterized by more personal independence than art students who, in a nonconformist subculture, can be extremely group-oriented.)

In any event, a larger number of findings can be accommodated by the hypothesis that relates independence as a personality characteristic rather than instrumental roles to artistic complexity, and Hypothesis 4 is therefore tentatively rejected.

F. SUMMARY AND CONCLUSION

Support from both experimental psychology and cross-cultural comparisons has been presented for the hypotheses that instrumental roles are associated with a preference for art styles that are more naturalistic, controlled, and which tend to carry their basic tendencies to an extreme; whereas expressive roles are linked with preference for art styles that are more abstract, spontaneous, and subdued.

Each of the hypotheses has been demonstrated independently of the other two. It does not follow that any instrumental-expressive role differentiation pattern will be associated with clearly pronounced differences along all three dimensions of style preference. Some alternatives may be unavailable in a particular artistic tradition. It seems possible that a culture may "choose" with which dimension of artistic style primarily to associate its characteristic patterns of social role differentiation. Furthermore, one pattern (e.g., the sex-role differentiation) may be more strongly associated with one dimension of artistic style, while other patterns (e.g., the class and occupational differentiations) may be linked with other dimensions of style. This may be due to the possibility that different aspects of instrumentality or expressiveness may be predominant in different kinds of instrumental or expressive roles, and that the dominant aspects will be most clearly reflected in artistic preference. Indeed, a role may be instrumental in some respects and expressive in others. In this case, the artistic preference of the incumbent (or aspirant) is likely to combine, in a specific way, traits associated with the instrumental as well as with the expressive aspects of the role. In any event, institutionalized stylistic traditions circumscribe the spontaneous expression of role-associated artistic preferences. Our generalizations should be regarded as tendencies operating within institutionalized artistic traditions, and producing modifications (sometimes radical ones) within them.

In accounting for the observed associations, two possible relationships between role structure and artistic preference may be visualized. The occupants

of ascribed instrumental or expressive roles may learn to prefer styles most psychologically congruent with the operational requirements of their ascribed roles. Individuals who have developed preferences for *achievable* instrumental or expressive roles will learn to favor the styles corresponding with the psychological requirements of these roles through the same processes through which they have acquired their role preferences. The relationship between role and artistic preference should be closer in the first case than in the second case (unless the individual rejects his or her ascribed role), because an aspirant to a position is more likely to misperceive the requirements of the role he is aspiring to than is someone who occupies his role by ascription. Role-differentiation patterns also differ in the degree to which the two alternatives are rigidly defined and mutually exclusive. When differentiation is attenuated, as in American middle-class families, the artistic preferences of the occupants of the two roles should become increasingly similar.

The relevance of the psychological data surveyed to the theory being constructed is somewhat limited by the fact that the instruments of measurement have not been designed to test the present hypotheses (and do not always have an entirely unambiguous relationship to them), and that they were not administered cross-culturally. Our anthropological and art-historical comparisons, on the other hand, except Barry's (2), suffer from being extensively illustrative rather than rigorously quantified. Thus, while the data seem to be sufficient to suggest that the apparently universal differentiation of roles along the instrumental-expressive axis is associated with systematic variations in style preference among the culturally provided alternatives, the theory would profit from further testing.

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Based upon this general theory of consistency both in the development and the change of attitudes, the prediction was made in the present experiment that a persuasive communication successful in modifying the attitudes of Japanese university students on the broad issues of the Cold War would have generalized effects upon their attitudes toward the Cuban crisis. It was also expected that communications directed toward the Cuban situation would induce attitude change that would not generalize significantly to the broader topic of the Cold War. The general prediction was that a persuasive communication that was effective in producing attitude change in a broad target area would result in a generalized attitude change toward a more specific but logically related issue.

B. METHOD

1. *Materials*

An attitude scale dealing with the Cold War was developed from a pool of items made available by Dr. Marvin G. Cline, who had already scaled them using the Thurstone technique. Ten of these, including two neutral statements, were selected so as to represent approximately equidistant positions on a continuum of attitudes toward the Cold War, ranging from pro-United States to pro-Soviet Union. The items were stated in a form that could be responded to on a seven-point, Likert-type rating scale, on which the alternatives ranged from "strongly agree" to "strongly disagree." Scoring weights were assigned the several alternatives, so that a high score on the scale indicated a pro-U.S. attitude and a low score revealed a pro-Soviet attitude.

A series of statements representing views on the Cuban crisis ranging from pro-U.S. to pro-Soviet was devised from materials provided by the United States Information Service in Tokyo. Item analysis yielded eight statements having high correlations with the total score. Two neutral items were also added to the scale, making a total of 10.

Two communications defending the alternative propositions that the Cold War originated primarily through the policies of either the United States or the Soviet Union were adapted from published speeches by Adlai Stevenson and Nikita Khrushchev. Both of the communications were translated into Japanese by an instructor at the University of Tokyo and were tape-recorded by a male dramatic arts student from Nihon University. The reading time for each speech was approximately nine minutes. Since the proposed experiments had to be completed within the confines of a 50-minute class period, it was not possible to use communications of greater length.

The original materials from which the communications dealing with the

Cold War were derived also contained sections directed explicitly at the Cuban crisis. Two opposing arguments of approximately the same length as those dealing with the Cold War were devised on the subject of Cuba and were similarly translated and tape-recorded.

A supplementary questionnaire was also prepared containing a seven-point scale on which the subjects could rate the convincingness of the communication and a list of nine bipolar adjectives to be used in assessing the personality of the communicator. The subjects were instructed to check the adjective in each pair that best described the speaker: i.e., intelligent-unintelligent, sincere-insincere, kind-unkind.

2. Subjects

Subjects for the experiment were 100 students attending a social psychology class at the University of Tokyo College of Liberal Arts and 90 psychology students at Waseda University. These numbers represent students who appeared for both pretesting and the later experimental sessions. Twenty-six subjects were females and 164 were males.

3. Procedure

Due to problems in obtaining experimental subjects, it was not possible to design the study so that it could be completed at a single university. Consequently, a balanced design was used in which students at each of the universities participated in complementary phases of the research. All of the subjects were pretested and posttested on both issues to determine whether any attitude change induced by the directly relevant communication had generalized to the logically related area. The design of the experiment is shown in Figure 1.

| Pro-U.S. Communications | | Pro-Soviet Communications | |
|-------------------------|-------------------|---------------------------|---------------------|
| Cuba | Cold War | Cuba | Cold War |
| University of Tokyo | Waseda University | Waseda University | University of Tokyo |
| N = 50 | N = 32 | N = 58 | N = 50 |

FIGURE 1
DESIGN OF THE EXPERIMENT

The investigators had discovered from previous experience that Japanese students were extremely reluctant to put their names on attitude questionnaires dealing with political matters. In order to match pretest and posttest scores from the same individual, each questionnaire was numbered, and the identifying number was attached to the questionnaire on a small slip of paper and retained by the subject. During the pretesting, the two questionnaires were stapled together so that the Cuba scale was answered first by half of the students and the Cold War scale was answered first by the remaining half.

Approximately one week following the administration of the attitude scales, the students at each university were divided into two groups. Those students who had received even-numbered questionnaires were asked to remain in the room, while those who had received odd numbers were conducted to a different classroom. The subjects were then given the seven-point scale for rating the "convincingness" of the communication and the adjective checklist for describing the speaker. They were told that this was to be an experiment in communication, and that they would be asked for their judgments both of a speaker and of his arguments. The sources of the communications, however, were not identified.

One of the four speeches, according to the design shown in Figure 1, was then presented by tape recorder. After the students had completed the rating scale and the adjective checklist, copies of the attitude scales dealing with Cuba and the Cold War were distributed to them. The scales were again arranged so that half of the students at random answered the Cuba scale first and the other half answered the Cold War scale first. All of the experimental sessions were conducted by the class instructor and his assistants, and the American experimenter was at no time seen by the students.

C. RESULTS

1. *Initial Attitudes*

The distributions of attitude scores from students at the two universities were first examined for homogeneity. Mean scores on the Cuban attitude scale were 33.7 and 35.1, with an overall mean of 34.3. Scores on the Cold War scale yielded means of 29.0 and 31.8, with an overall mean of 30.5. Since the center of the distribution corresponded to a score of 32.0, it is apparent that the subjects were essentially neutral on the Cold War but tended to favor the United States on the Cuban issue.

2. *Attitude Change*

So far as reactions to the communications were concerned, the results may be summarized in a few words. The mean changes in scores on the attitude

scales following presentation of the persuasive communications ranged from -1.6 to $.5$. Analyses of variance of the change scores on both scales for the groups that heard either the communications on the Cold War or those on Cuba yielded insignificant F values. It is evident that no more change was induced in the attitudes that were direct targets of the communications than in the related areas.

Although the groups did not differ in the degree to which they were influenced on the two scales by either of the communications, it was possible that attitude change in one or more of the groups differed significantly from the null hypotheses of zero change. Accordingly, t -tests for repeated measurements were made on the mean change scores of the subjects on each of the scales in the four experimental groups. Of the eight t -tests thus computed, the only one reaching significance was on the Cuba scale by the Waseda students who heard the pro-Soviet communication about the Cuban situation and who moved on the average of -1.6 scale units in the direction advocated ($p < .05$).

In each of the groups, a significant positive correlation was found between initial scores on the two attitude scales, thus confirming the assumption that the two issues were cognitively related for the subjects.

3. *Convincingness Ratings*

In scoring responses to the convincingness rating scale, the designation "very convincing" was weighted seven and "very unconvincing" was weighted one. The average convincingness ratings assigned by students in each of the four experimental groups were then determined.

Each of the communications, whether relating to Cuba or to the Cold War, tended to be rated as "slightly unconvincing." The pro-U.S. arguments on Cuba and the Cold War received mean ratings on the seven-point scale of 3.49 and 3.32 respectively. The pro-Soviet arguments on the same two issues were rated 3.68 and 3.57. Although these mean ratings show the communications using Khrushchev's arguments to be rated slightly higher in convincingness than those employing quotations from Stevenson, the differences in each case, when evaluated by t -tests, fall short of significance. (For the Cuban crisis $t = .75$ and for the Cold War $t = 1.17$.)

4. *The Adjective Checklist*

The subjects were requested to elect one adjective in each of nine pairs as being the more descriptive of the communicator. Since the subjects were not told the actual sources of the persuasive communications, it may be assumed that they were responding to the voice, manner of delivery, and content of the

argument in making their evaluation of the speaker, who was the same for each communication. The speaker, of course, had attempted to record the respective arguments with equal force and sincerity.

Each adjective pair contained a favorable and an unfavorable member. A ratio was computed by dividing the number of favorable adjectives assigned to the speaker by the total number of adjectives checked. This ratio, since it took into account the total number of adjective pairs used, was judged to be a more valid measure than simply the number of favorable adjectives checked.

There was a tendency for the speaker, when voicing the pro-Soviet arguments on either Cuba or the Cold War, to be described more favorably than when presenting the position of the United States on these two issues. When reading Stevenson's comments on Cuba and on the Cold War, the speaker received an average assignment of +1.7 and +3.2 per cent favorable adjectives. The same speaker presenting the pro-Soviet viewpoints on these issues was assigned +8.1 and 52.2 per cent favorable adjectives. The differences in favorability ratios assigned the speaker when presenting the two opposing communications on either topic, however, failed to reach statistical significance. (For the Cuban crisis, $t = 1.11$ and for the Cold War $t = 1.17$.) Under none of the conditions was the speaker perceived in a particularly favorable light. Three of four correlations showed higher convincingness ratings to be accompanied by more favorable impressions of the speaker ($p < .01$ in each case). These judgments, then, can occur independently of attitude change.

It must be concluded that the attitudes of the subjects at the two Japanese universities studied were not readily influenced by either pro-U.S. or pro-Soviet arguments. The convincingness ratings made of the communications, as well as the judgments of the communicator, are consistent with the mean attitude change scores: that is, the subjects rated both arguments slightly below the midpoint of the convincingness scale, and in three of the four groups they described the speaker largely in unfavorable terms. It would appear that any discomfort or "dissonance" aroused by the communications was resolved by discounting the arguments or by discrediting the communicator.

Discussion of the results with several Japanese psychologists generated some plausible explanations of the failure of the communications to induce a measurable amount of attitude change in the subjects. It was suggested, for example, that the students in these two predominantly male universities are generally refractory toward obvious attempts to influence them on political matters. They also seem to have adopted what might be termed a "Japan first" attitude toward international conflict. Their attitudes toward the Cold War are perhaps best described as representing "entrenched neutrality," and their

pro-U.S. sentiments on the Cuban issue are lukewarm, at best. Still another explanation of the findings was based upon the mode of presentation of the communications, rather than their content. Because of the intensive effort that the Japanese must exert to learn their own written language with its three forms of *kana*, or characters, Japanese students may be more influenced by what they read than by what they hear. This hypothesis was later examined by McGinnies (3) and found tenable, at least under some circumstances.

Since a significant change in attitude was observed in only one of the experimental groups, it is obvious that the main hypothesis of the experiment remains untested. Generalization effects in attitude change obviously cannot occur unless a significant amount of change is induced in the target attitude. The results are not consistent with findings by Tannenbaum (7) or by McGinnies, Donelson, and Haaf (4), who report that subjects whose attitude scores are located near the midpoint of a continuum are more readily influenced than those holding more extreme attitudes. The frequency and fervor with which Japanese university students engage in political demonstrations suggests that their avoidance of commitment on a questionnaire represents neither apathy nor lack of information about international issues. Apparently the concept of "neutrality" as well as the assumption that it necessarily represents increased susceptibility to persuasion merit re-examination in the light of cultural variables.

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STUDIES IN PERSUASION: II. PRIMACY-RECENCY EFFECTS WITH JAPANESE STUDENTS*¹

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A. INTRODUCTION

Hovland, Janis, and Kelley (4) have given practical expression to the primacy-recency problem in persuasion as follows: "Should one start with his strongest arguments or save them until the end?" Or, stated another way, if two different sides of an issue are to be presented, will the side presented first or that presented second have a greater influence on opinion?

Two representative experiments dealing with this problem were performed by Lund (8) and by Cromwell (1). The conflicting results obtained by these investigators may be viewed in retrospect as presaging a series of later studies that have generated similarly contradictory and inconclusive findings. Lund presented subjects with arguments both proposing and attacking higher protective tariffs for the United States. Half of his subjects heard the affirmative argument first, and the remaining half heard the negative argument first. Opinion questionnaires were administered initially to all of the subjects and again after each of the two opposing communications. Lund discovered that opinion change following the first communication was significantly greater than that following the second communication, a finding that suggested the operation of a "Law of Primacy" in persuasion. Cromwell, on the other hand, found that the second of two conflicting communications was more effective in influencing opinion, and thus obtained a "recency" rather than a "primacy" effect. The procedure in this experiment, however, differed from that of Lund's in that posttesting took place only after both communications had been presented.

Hovland and Mandell (2) failed to replicate Lund's findings and suggested that primacy may operate under some conditions and recency under others. Lana (6), Lana and Rosnow (7), and Schultz (9) have reported experiments

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in which other relevant variables have been introduced into the primacy-recency paradigm. Among the several conditions that seem to interact with order effects in persuasion are familiarity and controversiality of the topic, subject awareness of the experimenter's intention, and interest and knowledgeability of the subject with respect to the controversial topics.

In the present experiment, Japanese university students were exposed to conflicting communications on the subject of the Cold War in an attempt to determine whether the first or the second of the arguments would be more effective in influencing attitudes. The issue that was selected may be assumed to have been fairly controversial as well as both familiar and interesting to the students. An attempt was made to disguise the purpose of the experiment by presenting it as a task in judging both a communication and the communicator. No clear-cut prediction could be made on the basis of these conditions for either a primacy or a recency effect. Rather, the investigators hoped to discover whether argumentation on a matter of current interest and importance would induce differential effects on attitude change as a function of order of presentation. The possibility existed that the lively concern of Japanese students with international issues might generate results less equivocal than those that have been reported with American subjects.

B. METHOD

1. *Subjects*

Subjects who participated in the research were 131 students at Aoyama Gakuin University in Tokyo. Of these, 121 were females. All were freshmen and sophomores enrolled in English language classes conducted by American instructors.

2. *Materials*

An eight-item Likert-type questionnaire was designed to determine the attitudes of Japanese students on the question of responsibility for the Cold War. Agreement or disagreement with each statement could be indicated along a seven-point scale, with a high score representing sympathy with the United States. The persuasive communications consisted of arguments supporting the position officially taken by the United States with respect to the Cold War issue. The two communications were slightly modified excerpts from published speeches by Adlai Stevenson and Nikita Khrushchev.

Trial playbacks of the recorded arguments in the classrooms in which the experiments were to be conducted revealed that the high ceilings and concrete

floors caused difficulty in understanding a baritone male voice. For this reason, the speeches were re-recorded by a young woman whose voice was more audible in the rear seats. In order to further insure that all of the subjects would have equivalent exposure to the communications under these less-than-desirable conditions for auditory presentation, printed copies of the two communications were distributed for reading at the same time that the tape recordings were played. All of the materials, both oral and written, were in the Japanese language.

3. Procedure

Four different classes participated in the experiment and were assigned arbitrarily to four experimental conditions. Group I ($N = 38$) heard and read the pro-U.S. communication first and the pro-Soviet communication second. Group II ($N = 53$) was exposed to the two communications in the reverse order: that is, pro-Soviet first and pro-U.S. second. Group III ($N = 23$) heard only the pro-U.S. argument, while Group IV ($N = 17$) heard only the pro-Soviet communication.

The attitudes of the students toward the Cold War were initially determined about two weeks prior to the experiment. Since not all of these students appeared in class on the day that the experimental communications were presented, the number of cases in two of the groups was considerably less than had been expected on the basis of the number of pretests. The experimental sessions were conducted by two female Japanese students who had been carefully briefed regarding the procedures to be followed. The subjects were told that this was an experiment designed to elicit their reactions to a controversial topic as well as to the speaker who would present it. Subjects in Groups I and II were then given copies of the first communication, either pro-U.S. or pro-Soviet. With these materials before them, they listened to the speech over a tape recorder. The written materials were then collected, and the students were given a one-page form containing a seven-point rating scale for judging the convincingness of the argument, and a checklist of nine pairs of bipolar adjectives on which they were asked to indicate their perceptions of the speaker. These materials were also collected, and the second persuasive communication was distributed, followed immediately by the tape-recorded presentation of the second speech. After the printed materials were collected, the students were again given forms for rating the communication and describing the speaker. While the students were filling these out, attitude scales on the Cold War were distributed to be answered for the second time.

Identical procedures were followed with Groups III and IV, except that a

single communication was used in each case. The purpose of this was to determine the effectiveness of each communication by itself in influencing the attitudes of these particular groups of students.

C. RESULTS

1. *Initial Attitudes*

The distributions of initial attitude scores among students in the four classes were similar. Means of the four groups were as follows: Group I, 32.6; Group II, 33.9; Group III, 33.6; and Group IV, 33.8.

The great bulk of the subjects clustered near the center of the scale, a position denoting neutrality on the main issues of the Cold War. No subjects expressed strongly pro-U.S. or pro-Soviet sentiments. According to most theories of persuasion derived from experiments with American students, these subjects should have been relatively susceptible to either of the two arguments.

2. *Attitude Change*

The first step in analyzing the results was to compute the mean attitude scores of the subjects before and after each of the experimental treatments.

TABLE 1
MEAN PRETREATMENT AND POSTTREATMENT SCORES ON THE COLD WAR ATTITUDE SCALE

| Group | Order of presentation | N | Pretest | Posttest | Difference |
|-------|-----------------------|----|---------|----------|------------|
| I | U.S.-Soviet | 38 | 34.3 | 33.5 | -0.8 |
| II | Soviet-U.S. | 53 | 34.0 | 33.1 | -0.9 |
| III | U.S. only | 23 | 33.6 | 32.9 | -0.7 |
| IV | Soviet only | 17 | 33.8 | 32.8 | -1.0 |

These means are shown in Table 1. The mean change in every case was negligible, and analysis of variance showed the differences in attitude change scores between groups to be insignificant.

It is obvious that the communications had no effect on the attitudes of the subjects toward the Cold War, either singly or in combination. Since no influence effect occurred in Groups III and IV, the members of which were exposed only to one of the communications, no order effect could logically have been expected in Groups I and II, and none was found.

3. *Convincingness Ratings*

The two groups that heard both the pro-U.S. and pro-Soviet communications responded to the convincingness rating scale after presentation of each argument. The two control groups, of course, received the rating scale only once, at

the conclusion of the single communication. Table 2 shows the mean convincingness ratings assigned by subjects in each of the four groups to both communications.

In the two groups where order effects were examined, the pro-U.S. communication based upon Ambassador Stevenson's declaration was rated as more convincing than the pro-Soviet argument taken from the address by Premier

TABLE 2
SUMMARY OF DATA ON CONVINCINGNESS RATINGS AND PROPORTIONS OF
FAVORABLE ADJECTIVES ASSIGNED TO THE SPEAKER

| Group | Communi- cations | Mean convinc- ingness rating | <i>t</i> | Mean adjective favorability ratio | <i>t</i> |
|-------|---------------------|---------------------------------------|----------|--|----------|
| I | Pro-U.S. | 4.28 | 1.17 | 68.2 | .93 |
| | Pro-Soviet | 4.04 | | 60.6 | |
| II | Pro-Soviet | 3.88 | 2.18* | 46.0 | .19 |
| | Pro-U.S. | 4.40 | | 47.6 | |
| III | Pro-U.S. | 4.64 | 4.70** | 63.0 | 2.67* |
| IV | Pro-Soviet | 2.76 | | 42.4 | |

* *t* value significant at the .05 level.

** *t* value significant at the .001 level.

Khrushchev. The difference in the case of Group I, which heard the pro-U.S. argument first, was not statistically significant. Group II, however, which heard the pro-Soviet argument first, rated the pro-U.S. argument as significantly more convincing than the pro-Soviet argument. In the control groups, III and IV, the average convincingness rating assigned to the pro-U.S. argument was also significantly higher than that accorded the pro-Soviet communication. The pro-Soviet argument heard second by Group I and first by Group II was not differentially rated as to convincingness, so that an order effect on this variable was not established.

There seemed to be no logical reason why the convincingness ratings of Groups III and IV should have been different from the ratings assigned by Groups I and II to the first of the two communications, whether taken from Stevenson or from Khrushchev. In other words, while the second of the two ratings by experimental Groups I and II might have been influenced by the fact that the subjects had already heard the opposing point of view, the

initial ratings were uncontaminated by this factor. Therefore, in order to test more rigorously the conclusion that the pro-U.S. communication was perceived as more convincing than the pro-Soviet argument, the ratings for all four groups were combined for each communication, taking only the ratings for the first communication in the case of Groups I and II. The results of the analysis based upon the 112 subjects who completed the convincingness rating scales yielded a mean difference in convincingness ratings of 1.14 scale units in favor of the pro-U.S. argument. A t value of 4.12 was significant beyond the .001 probability level.

4. *The Adjective Checklist*

Responses to each of the nine bipolar pairs of adjectives describing the speaker were coded as favorable or unfavorable, and a ratio was computed for each subject of the number of favorable adjectives to the total number of adjectives checked. Table 2 shows the mean percentages of favorable adjectives assigned to the speakers by the subjects in the four groups.

In the groups that heard both the pro-U.S. and pro-Soviet communications, it was probably apparent to a majority of the subjects that the same female voice delivered both arguments. For this reason, the adjective favorability ratios derived from ratings of the second communication were influenced by ratings assigned to the speaker following the first communication. The most meaningful comparisons, therefore, are those between the adjective ratios pertaining to the speaker while delivering the pro-U.S. communication in Groups I and III and the pro-Soviet communication in Groups II and IV.

The analysis based upon this grouping of the data was similar to that done on the convincingness ratings and showed the percentage of favorable adjectives assigned to the speaker to be much greater when she read the pro-U.S. argument (65.6) than when she read the pro-Soviet argument (44.2). The difference of 21.4 is significant with a t of 4.05 beyond the .001 level of confidence.

Five of the six correlations between convincingness ratings and adjective ratios were significant at either the .05 or the .01 level. It may be concluded that a reliable relationship exists between these two variables, with higher convincingness ratings being associated with the assignment of more favorable adjectives to the speaker. It is not possible to tell from the data whether one of these factors influenced the other. The two, in fact, may be jointly determined by the content of a communication and its congruence with certain latent attitudes of the listener.

D. DISCUSSION

So far as primacy-recency effects in persuasion are concerned, the results do not help to clarify the uncertain status of this problem. The subjects, most of whom were initially neutral on the salient issues of the Cold War, remained uninfluenced by arguments representing the positions of either the United States or the Soviet Union, whether presented independently or conjointly. One is tempted to conclude that primacy-recency is a false issue, at least where attitudes of any degree of commitment are involved (3).

Elsewhere, McGinnies (5) has reported an advantage of printed over vocal communication in influencing the attitudes of Japanese students toward the Cuban crisis. In the present experiment, the subjects held a printed copy of the communication before them while listening to the same arguments by tape-recording; yet they showed no subsequent change in attitude. There are several possible explanations for this apparently paradoxical finding. First, the subjects who listened to argumentation on the Cold War were closer to the neutral point, with a mean score of 33.9, than the subjects with a mean of 39.1 who heard or read communications about the Cuban crisis. Both scales contained the same number of items and had the same range. The evidence is strong that neutrality represents a position of strong commitment to Japanese students, one that is perhaps most resistant to arguments, printed or vocal, that advocate an extreme position. Another explanation of the failure of print to be effective in this experiment is the possible distracting effect of listening to the speech while reading it. Individuals probably comprehend vocal and printed material at different rates, so that simultaneous exposure to the two media is not necessarily more effective than exposure to either medium by itself.

That the subjects were not oblivious either to the content of the communications or to the personality of the speaker is evidenced by the differential discriminations that they made regarding both of these variables. Stevenson's arguments, although they did not induce any significant shift in the scores of the subjects on the attitude scale, were perceived as being significantly more convincing than Khrushchev's remarks. The speaker was also assigned a significantly greater proportion of favorable adjectives when she read the pro-U.S. argument than when she read the pro-Soviet argument. This effect was most apparent in the groups where only a single communication was presented. Where both arguments were presented, audience perceptions of the speaker seemed to be established during the reading of the initial communica-

tion, whether it represented the United States or the Soviet point of view. For example, in Group I where the pro-U.S. communication was read first, 68 per cent of the adjectives assigned to the speaker were favorable. When the same speaker then read a pro-Soviet argument, the percentage of favorable adjectives assigned to her dropped only to 61 per cent. Apparently, the relatively favorable impression of the speaker formed during her initial presentation was diminished only slightly when she read a second and less convincing communication.

When the speaker first presented the pro-Soviet argument, however, she received only 46 per cent favorable adjectives, and this figure increased only to 48 per cent when she subsequently read the pro-U.S. communication. An initially somewhat unfavorable impression was not markedly altered when the speaker presented a second communication that was rated significantly more convincing than the first one. The data suggest the relative immutability of first impressions of a communicator.

The findings involving judgments of the communicator and communication contrast sharply with those obtained with male subjects at two predominantly male universities in Tokyo and reported in the first paper of this series. The male students assigned on the average only 43 per cent favorable adjectives to a male speaker delivering a pro-U.S. communication on the Cold War, and a mean of 52 per cent favorable adjectives to the same speaker presenting a pro-Soviet viewpoint. Thus, the female subjects in the present experiment favored the speaker in her pro-U.S. role by a considerable margin over comparable judgments made by male students rating a male speaker in the same guise. In addition, the female subjects rated Stevenson's arguments as significantly more convincing than Khrushchev's, whereas the male subjects had rated the same two communications approximately equal in convincingness. Adherence to neutrality on the Cold War in the face of persuasion was common to both sexes, but a greater degree of sympathy for the United States viewpoint was evidenced by the female subjects in the convincingness and adjective favorability measures.

So far as theories of persuasion are concerned, the results compel us to consider reactions of a recipient other than those represented by responses to an attitude scale. It is apparent that discriminative judgments about both a communication and a communicator are not necessarily accompanied by a corresponding modification of attitude, at least where Japanese students are concerned. The significance of a "neutral" attitude must also be evaluated differently when predicting the reactions of these students to persuasion on international issues.

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STUDIES IN PERSUASION: III. REACTIONS OF JAPANESE STUDENTS TO ONE-SIDED AND TWO-SIDED COMMUNICATIONS*¹

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A. INTRODUCTION

Persuasive arguments may be organized in several ways. One variation involves the presentation of either one or both sides of an issue. Evidence submitted by Hovland, Janis, and Kelley (2) suggests that inclusion in a communication of arguments contrary to the position advocated is more effective in persuading antagonistic recipients than is one-sided communication. One-sided communications, on the other hand, seem to be more effective than two-sided communications in increasing the agreement of those recipients who already support the communicator's position. An experiment reported by Insko (3) indicates that a two-sided communication is generally more effective than a one-sided communication, regardless of the initial dispositions of the audience members. Lumsdaine and Janis (4), on the other hand, found a two-sided communication to be no more effective than a one-sided communication, although those subjects who were exposed to the two-sided argument were significantly less influenced by subsequent counter-propaganda than subjects exposed to the one-sided argument.

In all three of the experiments cited, opinions on the respective issues were measured by responses to a single, poll-type question, so that the generality of the results for attitude change must be tentative. The investigation to be reported here evaluated the hypotheses (a) that a two-sided presentation is superior to a one-sided appeal in convincing individuals who initially oppose the position advocated, and (b) that a one-sided appeal will be more effective than a two-sided appeal with those persons who support the communicator's position. The experiments were conducted in a setting that provided a cross-

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cultural test of these assumptions and dealt with international issues of significance to the subjects.

A unique methodological problem arises in this type of experiment. If attitudes on an issue are normally distributed, it is difficult to obtain sufficient numbers of subjects at either extreme to test the hypothesis that they are differentially influenced by one- and two-sided appeals. On the other hand, if attitudes on the issue are skewed in one direction, it is obvious that sufficient numbers of subjects will be available to evaluate the effects of only one of two opposing arguments. One way of handling this problem is to select two issues of such a different nature that attitudes on each will be skewed in opposite directions. By presenting either one- or two-sided communications to subjects selected from the more heavily populated end of each continuum, a sufficient number of cases may be obtained to test the general proposition that individuals who oppose the position advocated are more susceptible to persuasion when their own viewpoint is recognized and then refuted than when the communication is one-sided. This was accomplished in the present study by dealing with two issues that yielded oppositely skewed distributions of attitude scores from Japanese university students.

B. METHOD

1. *Materials*

The issues selected as topics for persuasion were the Cuban crisis and proposed visits by American nuclear-powered submarines to Japanese ports. Two 10-item questionnaires were devised to measure attitudes on these issues. Eight of the items on each questionnaire represented varying opinions with respect to the official policy adopted by the United States on these two matters. Each item was accompanied by a seven-point rating scale, with the response categories ranging from "strongly agree" to "strongly disagree." All of the items had satisfactorily high correlations with total score, as determined from pre-testing. Two of the items could be agreed with by subjects whose attitudes were essentially neutral, and these items were not scored.

A communication defending the actions taken by the United States following the discovery of missile bases in Cuba was prepared from remarks made before the United Nations by Ambassador Adlai Stevenson and translated into Japanese by the United States Information Agency. A second communication, devised from editorials appearing in the Japanese press, supported the position taken by the Japanese government in approving visits by American nuclear-powered submarines to Japanese ports. Each of the communications was

prepared in one-sided and two-sided versions. In the case of the two-sided communication dealing with the Cuban crisis, cognizance was taken of certain points raised by Premier Nikita Khrushchev on the matter of missile bases in Cuba. A two-sided version of the pro-U.S. communication on the question of submarine visits was developed by including reference to some of the arguments cited by a "left-wing" newspaper in opposition to submarine visits. All of the communications, however, whether one- or two-sided, supported United States policy on the two issues.

The four arguments were tape-recorded in Japanese by a dramatic arts student, who attempted to present each in an equally convincing manner. Due to the nature of the issues, the arguments on Cuba lasted several minutes longer than those on the submarine visits, and the two-sided arguments were slightly longer than the one-sided arguments because of the additional material that they contained. None required more than seven minutes for presentation. Previous experience had shown us that small differences in argument length did not introduce measurable differences in their relative impact.

2. Subjects

Eighty-three students enrolled in a psychology class at Keio University in Tokyo completed the experiment in persuasion on the Cuban situation. At Nihon University, 58 students also in psychology participated in the experiment using the issue of submarine visits. All of the subjects were identified by number rather than by name.

3. Procedure

On the day of the experiments, which took place one week following pre-testing of the subjects with the attitude scales, the students were directed to different classrooms according to the experimental condition to which they had randomly been assigned. Half of the subjects at Keio University heard the one-sided communication on the Cuban crisis, and the remaining half listened to the two-sided argument on this issue. The subjects at Nihon University were similarly divided with respect to argumentation on the question of submarine visits. As in the other experiments of this series, the subjects were told that the experiment was concerned with their reactions to both a speaker and his arguments. The subjects were given forms containing a seven-point scale for rating the convincingness of the communication and a list of nine bipolar adjectives for indicating their perceptions of the speaker. Each group then listened to a tape-recorded speech that presented either one-sided or two-sided advocacy of the pro-U.S. position on one of the controversial issues. The

subjects then responded to the convincingness rating scale and to the adjective checklist describing the speaker. Finally, they were posttested on the same attitude questionnaire to which they had responded one week earlier. A number of students whose attitudes were determined at the first administration of the scale were absent on the day of the experiment, causing the final numbers of subjects to be fewer than desired.

C. RESULTS

1. *Initial Attitudes*

Prior to the actual experiments it had been determined that the distributions of attitudes on these two issues followed the patterns desired: namely, skewness in opposite directions. The mean score of the Keio subjects on the Cuba scale was 37.4, while the mean of the Nihon subjects on the submarine scale was 26.3. Since the scores could range from 8 to 56, with 32 being the neutral position, it is clear that the subjects tended to support the United States' position on Cuba and to oppose visits by nuclear-powered submarines.

2. *Treatment of the Data*

On the basis of their initial attitude scores, the subjects were divided into those who favored and those who opposed the position advocated by the communicator. This was done by eliminating those subjects who obtained scores of 33 or lower on the scale dealing with Cuba and 31 or higher on the scale measuring attitudes toward submarine visits. This effectively limited the analysis to those individuals who were positive toward the United States position on Cuba ($N = 62$), and negative toward submarine visits ($N = 42$). Attitude change scores were computed for these subjects by subtracting their initial scores from their final scores on the scale. The mean attitude change score for each group was tested against the null hypothesis of zero change to determine which, if any, of the arguments had been effective in influencing attitudes on the two issues. Differences between convincingness ratings and percentages of favorable adjectives assigned the speaker were evaluated in terms of argument organization. The results of these analyses are shown in Table 1.

3. *Attitude Change*

The subjects who initially favored the position taken by the communicator on the subject of the Cuban crisis were not influenced significantly by either the one- or two-sided presentations, although the one-sided argument seems to have been slightly more effective than the two-sided argument. In the

case of the subjects who heard arguments defending a policy of which they disapproved—visits by nuclear-powered submarines—the two-sided communication induced a significant shift in attitudes, whereas the one-sided argument was ineffective.

4. *Convincingness Ratings*

Following exposure to the communications, the subjects rated them on a seven-point scale, with a rating of "very convincing" scored as seven and a rating of "very unconvincing" scored as one. The ratings were averaged over all subjects in each of the experimental groups, and the differences

TABLE 1
SUMMARY OF THE RESULTS FOR ATTITUDE CHANGE, CONVINCINGNESS RATINGS,
AND PERCEPTION OF THE COMMUNICATOR

| Issue | Subjects' disposition | Argument organization | N | Mean attitude change score | Mean Convincingness rating | Mean Adjective favorability ratio |
|------------|-----------------------|-----------------------|----|----------------------------|----------------------------|-----------------------------------|
| Cuba | Pro-U.S. | One-sided | 35 | 1.09 | 4.46 | .69 |
| | | Two-sided | 27 | .41 | 4.04 | .74 |
| Sub visits | Anti-U.S. | One-sided | 20 | 1.65 | 3.25* | .48* |
| | | Two-sided | 22 | 3.50** | 4.18* | .68* |

* Difference significant at the .05 level.

** Significantly different from zero at the .01 level.

between mean ratings of the two groups that listened either to a one-sided or a two-sided argument on the same issue were tested for significance.

The results (shown in Table 1) are consistent with those obtained from the attitude measurements. The one- and two-sided communications on Cuba were judged approximately equal in convincingness by those subjects who heard them and who sympathized with the viewpoint expressed. Among those subjects who listened to arguments advocating submarine visits, which they opposed, the two-sided communication was rated as significantly more convincing than the one-sided communication. The subjects who agreed with the communication on Cuba tended, regardless of argument organization, to rate it as more convincing than unconvincing. The subjects who disapproved the position advocated in the communication on nuclear-powered submarines, however, rated only the two-sided version as more convincing than unconvincing.

5. *Adjective Favorability Ratios*

Since one adjective in each of the nine pairs was complimentary to the speaker and one was derogatory, it was possible to derive an index showing

the extent to which a subject perceived the communicator favorably or unfavorably by dividing the number of favorable adjectives checked by the total number checked. Thus, the higher the ratio, the more favorable was the impression generated by the speaker. These mean ratios, which were compared by means of *t*-tests to determine whether argument organization was reflected in perceptions of the communicator, are also shown in Table 1.

When reading the communications on Cuba (with which the listeners agreed), the speaker was assigned, on the average, more favorable than unfavorable adjectives, regardless of whether he had presented a one- or two-sided argument. The same speaker, however, when addressing listeners who were antagonistic to the communication content, was perceived favorably only when he read the two-sided version.

D. SUMMARY AND DISCUSSION

All three independent variables—namely, attitude change, convincingness ratings, and impressions of the speaker—confirm the hypothesis that a two-sided communication is more effective than a one-sided communication in influencing individuals who are opposed to the position advocated. The results, with respect to the subjects whose initial convictions coincided with those voiced by the speaker, are not as clear, although the data tend to favor the one-sided over the two-sided communication in this instance.

The fact that the subjects who agreed with the communication on Cuba showed no significant shift in attitudes may be attributed (a) to a "ceiling effect," or (b) to the fact that the arguments were oral rather than printed. It has been reported [McGinnies (5)] that a similar group of subjects who read the one-sided communication on Cuba were influenced to a significant extent. It is conceivable that the effects reported here might have been augmented if printed rather than tape-recorded arguments had been used with the Japanese subjects. Additional research will be needed to determine whether there is an interaction between argument organization and mode of presentation.

In the case of those recipients of the communication on nuclear-powered submarines who were opposed to the position advocated, it is apparent that the two-sided argument was not only perceived as more convincing than the one-sided argument but also reflected more favorably upon the personality of the communicator. These two factors undoubtedly account for the greater effectiveness of the two-sided presentation in influencing attitudes. Theoretically, why should this be so? A study by Hovland, Harvey, and Sherif (1) showed that with increasing distance between the position of the subject and

the position advocated by a communication, any initially favorable reaction is lessened, and the communication may be perceived as propagandistic and unfair. Subjects in their experiment whose initial viewpoints were relatively close to that stated in the communication tended more than other subjects to change in the direction advocated. It is likely that a two-sided communication, because of its inclusion of some material with which the recipient agrees, has the effect of reducing the "distance" between the recipient and the viewpoint advocated. A one-sided communication, on the other hand, maximizes this distance and, hence, increases the probability that the subject will reject either the communication or the communicator in preference to changing his original attitude.

The practical implications of the results are rather obvious and might well be contemplated by those who are charged with the responsibility of influencing foreign nationals on matters of concern to this country. The fact that subjects in both Japan and the United States react in similar fashion to one-sided and two-sided communications suggests that the differences found here are probably applicable to other national groups as well, where cultural differences are even less pronounced.

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RESPONSES ON RACIAL ATTITUDES AS AFFECTED BY INTERVIEWERS OF DIFFERENT ETHNIC GROUPS*

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A. INTRODUCTION

For some time interviewing has been employed by social scientists as a tool for obtaining data. It is an established fact that interviewers have certain biases and that these biases may affect the data collected. However, equally important is the fact that the respondent's attitude toward the interviewer may significantly affect his responses. While it seems clear that the characteristics of the interviewer might affect the respondent, it is surprising to find such a paucity of literature in this area, especially concerning racial attitudes.

In a study by Athey *et al.* (1), an Oriental and a Caucasian interviewer questioned Caucasian respondents concerning the acceptance of Orientals. The results were that more "socially acceptable" answers were given to the Oriental interviewer than to the Caucasian interviewer: i.e., the feelings of the Oriental interviewer were taken into account and the respondents were less inclined to reject Orientals. In the same study, a Negro and a Caucasian interviewer questioned middle-class white college students and property owners concerning the effect on property values when Negroes moved into a neighborhood. The results showed that the Negro interviewer received responses that were more "socially acceptable" than did the Caucasian interviewer.

Hyman (2) reported a study conducted by the National Opinion Research Poll in 1942. Both Caucasians and Negroes interviewed 500 Negroes in Memphis, Tennessee, on questions concerning the war effort. The Caucasian interviewers received a significantly higher proportion of the "proper" responses than did the Negro interviewers.

Another experiment in this area was conducted by Robinson and Rohde (3). These experimenters conducted an anti-Semitic poll and found that significantly different responses were given to Jewish-appearing interviewers and non-Jewish-appearing interviewers.

While each of the cited studies sheds light on the problem of concern, none of them questions whether or not one ethnic group shifts more in its responses

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between interviewers than does another. The present study differs from the previous studies in that interviewers from the Negro group and the white group each interviewed both Negro and white subjects. Moreover, the previous studies used college students and adults as subjects, while adolescents were used in this study. The design of the present experiment makes it possible for one (*a*) to study the differences in the responses of the two racial groups due to the interviewers, (*b*) to compare the overall responses of the white group with the overall responses of the Negro group, and (*c*) to determine which racial group shifted the more in their responses to interviewers of the two racial groups.

B. PROCEDURE

The 60 subjects chosen for this experiment were from the Paseo High School in Kansas City, Missouri, a school located in a predominately Catholic area. The socioeconomic status of the student body ranges from that of extreme poverty to the moderately well-to-do family. The school was integrated in 1955, and presently (1965) Negroes comprise 37 per cent of the school population. Both the faculty and administration are also integrated. Subjects were 30 white students and 30 Negro students equally divided on the basis of sex. The students ranged in age from 15 to 18 years.

The interviewers were two Negro undergraduate students and two white graduate students. One Negro and one white interviewer each interviewed 15 Negro students. The other Negro and the other white interviewer each interviewed 15 white students.

The questionnaire, administered to each subject, was primarily concerned with social relationships: e.g., "Would you date a Negro?" "Would you invite a white person to eat dinner in your home?" The questions were the same for both racial groups. Negroes were asked about entering into social relationships with whites, and whites were asked about entering into social relationships with Negroes. The questionnaire was composed of 15 questions, shown in Table 1. The subjects had a choice of responding "yes," "maybe," "don't know," "don't think so," or "no" to each question. Care was exercised that the questions were asked by each interviewer in the same manner.

Subjects were told:

We are taking part in a public opinion poll; that is, a study to find out how people feel about certain things. We are going to ask you, individually, a few questions; and you will have a choice of one of five possible answers to each question. We will not ask for your name and, of course, your answers will in no way affect your grades here at school.

Your answers will, however, be important to those of us who are doing this study; and you all may justly feel a sense of pride in taking part in it with us. Now your teacher will indicate to you where each of you is to go for these interviews. Thank you!

When the subject appeared for the interview, the interviewer spoke as follows:

We appreciate very much your willingness to take part in this study. Now, I'm going to ask you a few questions. Here is a sheet with the possible answers to each question. After each question is asked, tell me the answer which you think comes closest to how you feel about the subject. Are you ready?

The interviewer recorded the responses as they were given.

C. RESULTS AND DISCUSSION

Each subject could respond to each of the 15 questions by selecting one of five different answers. If the question was asked in a positive manner (e.g., "Would you date a Negro?"), a score of five was given for "yes," four for "maybe," three for "don't know," two for "don't think so," and one for "no." If the question was asked in a negative manner (e.g., "Would you object to working with a white person?"), a score of five was given for "no," four for "don't think so," three for "don't know," two for "maybe," and one for "yes." For each of the 15 questions, four means were obtained: one for the Negro subjects interviewed by a Negro interviewer, a second for the Negro subjects interviewed by a white interviewer, a third for the white subjects interviewed by a white interviewer, and a fourth for the white subjects interviewed by a Negro interviewer. These four means for each of the 15 questions are presented in Table 1. To understand how the subjects were answering the question, the mean scores can be translated back to the original response categories. Thus, the mean 2.87 obtained in Question 1 for the Negro subjects, when interviewed by an interviewer of the same race, shows that the average answer for this group was between "don't think so" and "maybe." The mean 1.27 obtained for this same question by white subjects, when interviewed by an interviewer of the same race, indicates that the average response for this group was between "don't think so" and "no."

The data can be analyzed to answer three questions: (a) do Negro subjects or do white subjects show the greater prejudice or the less acceptance of the other race; (b) is there a shift toward a less prejudiced response when subjects answer questions about a different racial group and are being interviewed by interviewers who are of the same race as is dealt with in the questions; and

TABLE 1
MEAN SCORES OF QUESTIONS ASKED WHITE STUDENTS AND NEGRO STUDENTS
BY NEGRO INTERVIEWERS AND WHITE INTERVIEWERS

| Question | Negro subjects Negro interviewer | Negro subjects White interviewer | White subjects White interviewer | White subjects Negro interviewer |
|--|---|---|---|---|
| 1. Would you date a Negro?†* | 2.87 | 2.93 | 1.27 | 1.33 |
| 2. Would you belong to a club that included an equal number of Negroes and whites? | 4.20 | 4.93 | 4.53 | 4.67 |
| 3. Would you live in a neighborhood that was predominantly Negro? | 3.47 | 3.87 | 3.20 | 3.27 |
| 4. Would you object to working with a Negro? | 4.60 | 4.80 | 4.87 | 5.00 |
| 5. Would you sit next to a Negro in your classroom? | 5.00 | 5.00 | 5.00 | 4.93 |
| 6. Would you eat at the same table with a Negro in a restaurant?* | 4.87 | 4.87 | 3.73 | 4.27 |
| 7. Would you sit next to a Negro in a movie? | 4.53 | 4.87 | 3.80 | 4.53 |
| 8. Would you invite a Negro to eat dinner with you in your home?* | 4.47 | 4.33 | 3.27 | 2.73 |
| 9. Would you object to dancing with a Negro?* | 3.47 | 3.93 | 1.47 | 1.67 |
| 10. Would you engage in recreational activity with Negroes? | 4.73 | 4.93 | 4.47 | 4.93 |
| 11. Would you object to having a Negro roommate?* | 4.07 | 4.67 | 2.33 | 2.87 |
| 12. Would you vote for a Negro for President of the United States?* | 5.00 | 4.73 | 3.27 | 4.00 |
| 13. Would you object to your sister's marrying a Negro?* | 3.53 | 4.00 | 1.20 | 1.60 |
| 14. Would you object to a Negro going to your church? | 5.00 | 4.80 | 4.87 | 5.00 |
| 15. Would you belong to a church having a white congregation and a Negro minister? | 4.33 | 4.13 | 4.00 | 3.73 |
| Mean for all 15 questions | 4.27 | 4.45 | 3.42 | 3.64 |

† The term "Negro" was replaced by "white person" on questions asked Negro subjects.

* Negro subjects have significantly higher mean scores than white subjects ($p < .05$).

(c) do the two groups of subjects differ from each other in the extent to which they shift when interviewed by the two types of interviewers, one of the same race and one of a different race?

To answer these questions, a 2×2 analysis of variance was carried out for the four means of each of the 15 questions presented in Table 1.

Considering the results relating to the first question raised above, the authors found differences significant at or beyond the .05 level for seven questions (Numbers 1, 6, 8, 9, 11, 12, and 13), all showing that Negro subjects are less prejudiced or more accepting of whites than white subjects are of Negroes.

Observing Table 1, we can see quickly, by comparing the first column of means (responses given by Negro subjects to Negro interviewers) with the third column of means (responses given by white subjects to white interviewers), that on 11 of the questions Negro subjects had a higher mean score than white subjects. Also from Table 1 we can observe that only one of the means of the Negro subjects fell below three (2.87), while for the white subjects four of the means in the third column are below three (2.33, 1.27, and 1.20).

The second question raised above dealt with whether or not the subjects would shift to higher scores when interviewed by interviewers of a different race. From the 2×2 analysis of variance, none of the items yields significance at the .05 level. Some support, however, is given to the idea that a shift toward higher scores occurs when subjects are interviewed by different racial interviewers. On nine of the 13 questions asked, Negro subjects gave more positive mean responses when interviewed by the white interviewer. The means on the other two questions were tied. Similarly, the white subjects gave more positive mean responses to 12 of the 15 questions when interviewed by the Negro interviewer rather than by the white interviewer.

The third question asked if the two groups of subjects shifted differentially to the two types of interviewers. Only one question, Number 10, yields an interaction that reached significance at the .05 level. An examination of the extent of shift from column one to column two with that of column three to column four reveals no apparent trend.

In summary, the results of this study give (a) strong support to the idea that Negro subjects are less prejudiced and more accepting of whites than whites are of Negroes, particularly in situations involving close interpersonal relationships; (b) little support to the idea that the two groups of subjects shift differentially to the two types of interviewers; and (c) some support to the idea that subjects shift to a less prejudiced response when answering questions about a different racial group when they are interviewed by a member of the same race about whom they are being questioned. The surprising fact, however, is that more shifting did not occur. It may be that the adolescent subjects, interviewed in a school setting, saw the interviewers as members of the teaching staff and were less concerned with their race than with their

authoritative positions. If both the Negro interviewers and the white interviewers were seen mainly as authority figures desiring "enlightened" responses, then the race of the interviewers had little relative influence. This point can bear further investigation.

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A COMPARISON OF PREJUDICES: THE EFFECTS UPON FRIENDSHIP RATINGS OF CHRONIC ILLNESS, OLD AGE, EDUCATION, AND RACE*¹

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A. INTRODUCTION

The term "minority group," with its connotations of inferior status and social rejection, has been applied to both the elderly and the physically disabled [Barron (4), Barker (3)]. Such designations seem appropriate because these groups are often discriminated against by employers, segregated in housing, and excluded from certain social activities. Studies of prejudice toward the elderly and the ill have chiefly investigated stereotyped beliefs about them. Results have been neither consistent nor conclusive. Axelrod and Eisdorfer (2), for example, found that agreement with the negative statements of the Tuckman-Longe scale increased as the age of the stimulus person increased, but Golde and Kogan (8) found that sentence completions in relation to the elderly were generally positive. Likewise, Wright concluded that "publicly expressed attitudes toward persons with physical disabilities for the most part are not unfavorable" (16, p. 58). Cripples, for example, were believed by one sample to be above average in conscientiousness, self-reliance, kindness, persistence, originality, intelligence, religiousness, and generosity [Mussen and Barker (9)].

Despite these favorable beliefs, however, it is possible that negative feelings toward the elderly and the ill may prevail among young, healthy subjects. Even though the "belief" and "feeling" aspects of prejudice are ordinarily highly correlated [Allport (1), Fishbein (7)], feelings toward the elderly and ill are of sufficient interest to merit separate investigation, and have been little studied.

One early study [Strong (12)] reported a preponderance of liking for old people, the blind, and cripples, in contrast to a dislike for sick people, deaf-mutes, and Negroes. Pearlin and Rosenberg (10), on the other hand, found personal distance associated with differences in age between nurses

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and patients; Golde and Kogan (8) likewise found college students less willing to become personally involved with elderly than with middle-aged persons.

Because there exists no standardized scale for the measurement of attitudes, the assessment of feelings toward particular groups is increasingly meaningful when several such groups are compared. Prejudice against Negroes, because it is so pervasive in the American culture, provides a useful standard for estimating prejudice against other groups. Triandis (14, 15), for example, found race to have a greater effect upon social distance than social class, religion, nationality, or philosophy (Morris's ways of life). Rokeach (11), on the other hand, found specific beliefs (belief in God, democracy, segregation) more potent than race in their effects upon friendship ratings.

The present study has continued this line of research to include the elderly and the ill. Education, as a relatively prominent indication of social class and a frequent correlate of race, health, and age, was a third variable, with race (Negro, white), a fourth. The dependent variable was a rating of social distance in relation to friendship.² The subjects were white college students, both male and female.

It was hypothesized that all four factors would affect the friendship ratings made by college students, since in each case one value of the factor would indicate striking differences between the stimulus person and the subject. Higher ratings for social distance were thus anticipated in relation to the elderly, the ill, the Negro, and the uneducated. Of greater interest than the main effects, however, were the comparative strengths of these factors and the interactions between them. For example, would education have a greater effect upon friendship ratings with a Negro stimulus person than with a white stimulus person? Would a white college student prefer an older educated or a young uneducated individual? Or would an unhealthy white be preferred to a healthy Negro?

B. METHOD

Forty white male and 40 white female college students at the University of Delaware were presented with 16 stimulus persons (described below) and asked to estimate the likelihood of their becoming close friends with each on the following scale: 6, definitely yes; 5, probably yes; 4, possibly yes; 3, possi-

² The complete social distance scale, as originated by Bogardus (5), did not seem appropriate for the elderly and the ill because, at one extreme, marriage may have been rejected for practical reasons (such as life expectancy, fertility, or low income) unrelated to negative attitudes, and, at the other, exclusion from the neighborhood, the club, or the country would appear to mitigate against the reproducibility of this Guttman-type scale because the elderly and the ill would already be potential family members.

bly no; 2, probably no; 1, definitely no. Subjects were told to assume that each stimulus person was the same sex as themselves, and that the subject would come into close contact with each in the course of his vocational duties.

For the stimulus persons, a factorial design containing four factors, each with two values, was employed. These were as follows: (a) race: Negro, white; (b) education: college graduate, grade school education; (c) health: healthy, chronically ill; (d) age: old, young. In a manner similar to that employed in the studies of Triandis (14, 15), each stimulus person displayed one value of each factor: e.g., the first stimulus person was "chronically ill, young, college graduate, Negro." The values of the four factors were distributed so that each possible combination (16 in all) appeared, with half of all stimulus persons displaying each value of a particular factor. In addition, the order of the various factors was controlled, with each factor occupying each of the four positions one-fourth of the time, and each of the two values of each factor appearing equally often in each position. The stimulus persons were arranged in a random order and presented to all subjects in the same order. All subjects rated all stimulus persons.

C. RESULTS

1. Analysis

Scores from the friendship ratings were analyzed by means of a 2^5 analysis of variance with repeated measures. The five variables were as follows: (a) sex of subject, (b) race of stimulus person, (c) age of stimulus person, (d) education of stimulus person, and (e) health of stimulus person. Since this analysis required the computation of 16 error terms from various manipulations of the 1280 scores, this phase of the analysis was completed on the Bendix G-15 Computer.

2. Significant Effects

The results of the analysis are shown in Table 1. Twelve of the 31 terms were significant at the .05 level or less. All four variables in the stimulus person were significant ($p = .001$) in the anticipated direction, indicating higher ratings of friendship for the young, healthy, white, and educated. In order to compare mean ratings of the various cells in the significant interactions, Tukey's *hsd* test [Federer (6)] was employed. Means and significant differences are shown in Table 2.

The significant first-order interactions may be summarized as follows:

a. *Sex by race* ($p = .05$). The female subjects rated the white stimulus person significantly higher than did the men; there was no difference between the sexes in regard to ratings of the Negro.

TABLE 1
ANALYSIS OF VARIANCE OF FRIENDSHIP RATINGS IN RELATION TO SEX OF SUBJECT, AND
AGE, HEALTH, EDUCATION, AND RACE OF STIMULUS PERSON

| Source ^a | df | MS | F | p |
|---------------------|----|--------|--------|------|
| A | 1 | 4.88 | | |
| B | 1 | 47.66 | | |
| C | 1 | 254.72 | 68.88 | .001 |
| D | 1 | 112.22 | 150.72 | .001 |
| E | 1 | 311.06 | 91.61 | .001 |
| AB | 1 | .28 | 186.60 | .001 |
| AC | 1 | 4.88 | | |
| AD | 1 | 5.38 | 2.88 | .10 |
| AE | 1 | 2.36 | 4.39 | .05 |
| BC | 1 | 3.94 | 1.42 | |
| BD | 1 | .96 | 9.49 | .005 |
| BE | 1 | .18 | 3.28 | .10 |
| CD | 1 | 1.44 | | |
| CE | 1 | 12.60 | 3.53 | .10 |
| DE | 1 | 1.44 | 31.26 | .001 |
| ABC | 1 | .09 | 4.15 | .05 |
| ABD | 1 | .01 | | |
| ABE | 1 | .04 | | |
| ACD | 1 | .34 | | |
| ACE | 1 | 1.88 | | |
| ADE | 1 | .06 | 4.66 | .05 |
| BCD | 1 | 7.66 | | |
| BCE | 1 | 4.88 | 18.96 | .001 |
| BDE | 1 | 1.31 | 12.04 | .001 |
| CDE | 1 | .13 | 4.59 | .05 |
| ABCD | 1 | .01 | | |
| ABCE | 1 | .00 | | |
| ABDE | 1 | .02 | | |
| ACDE | 1 | .49 | | |
| BCDE | 1 | 1.19 | | |
| ABCDE | 1 | .02 | 2.81 | .10 |
| F, A | 78 | 6.82 | | |
| FB, A | 78 | .69 | | |
| FC, A | 78 | 1.69 | | |
| FD, A | 78 | 1.22 | | |
| FE, A | 78 | 1.67 | | |
| FBC, A | 78 | .42 | | |
| FBD, A | 78 | .29 | | |
| FBE, A | 78 | .24 | | |
| FCD, A | 78 | .41 | | |
| FCE, A | 78 | .40 | | |
| FDE, A | 78 | .35 | | |
| FBCD, A | 78 | .40 | | |
| FBCE, A | 78 | .41 | | |
| FBDE, A | 78 | .29 | | |
| FCDE, A | 78 | .33 | | |
| FBCDE, A | 78 | .42 | | |

^a A = sex of subject, B = age of stimulus person, C = education of stimulus person, D = race of stimulus person, E = health of stimulus person, and F = individuals within groups.

TABLE 2
MEANS AND SIGNIFICANT DIFFERENCES FOR ALL SIGNIFICANT TERMS

Main effects

Age: old—3.5, young—3.8
Education: college graduate—4.1, grade school—3.2
Race: white—3.9, Negro—3.4
Health: healthy—4.1, chronically ill—3.2

First order interactions

1. Sex by race

| | | | |
|-------------------------------|-----------------------------|-------------------------------|-----------------------------|
| female white <u>4.1</u> | male white <u>3.8</u> | female Negro <u>3.4</u> | male Negro <u>3.4</u> |
|-------------------------------|-----------------------------|-------------------------------|-----------------------------|

2. Age by education

| | | | |
|--------------------------------|------------------------------|-------------------------------------|-----------------------------------|
| young college <u>4.4</u> | old college <u>3.9</u> | young grade school <u>3.2</u> | old grade school <u>3.1</u> |
|--------------------------------|------------------------------|-------------------------------------|-----------------------------------|

3. Education by health

| | | | |
|----------------------------------|---------------------------------------|------------------------------|-----------------------------------|
| healthy college <u>4.7</u> | healthy grade school <u>3.6</u> | ill college <u>3.5</u> | ill grade school <u>2.8</u> |
|----------------------------------|---------------------------------------|------------------------------|-----------------------------------|

4. Race by health

| | | | |
|--------------------------------|--------------------------------|----------------------------|----------------------------|
| white healthy <u>4.5</u> | Negro healthy <u>3.8</u> | white ill <u>3.4</u> | Negro ill <u>2.9</u> |
|--------------------------------|--------------------------------|----------------------------|----------------------------|

Second order interactions

1. Sex by education by health

| | | | | | | | |
|--|--|---|--|---|--------------------------------------|---------------------------------------|---|
| female college healthy <u>4.8</u> | male college healthy <u>4.6</u> | female gr. sch. healthy <u>3.7</u> | female college ill <u>3.6</u> | male gr. sch. healthy <u>3.5</u> | male college ill <u>3.4</u> | male gr. sch. ill <u>2.9</u> | female gr. sch. ill <u>2.7</u> |
|--|--|---|--|---|--------------------------------------|---------------------------------------|---|

2. Age by education by race

| | | | | | | | |
|---|---------------------------------------|---|---------------------------------------|--|--|--|--|
| young college white <u>4.8</u> | old college white <u>4.1</u> | young college Negro <u>3.9</u> | old college Negro <u>3.6</u> | young gr. sch. white <u>3.6</u> | old gr. sch. white <u>3.4</u> | young gr. sch. Negro <u>3.1</u> | old gr. sch. Negro <u>2.8</u> |
|---|---------------------------------------|---|---------------------------------------|--|--|--|--|

3. Age by education by health

| | | | | | | | |
|---|---|--|---------------------------------------|--|-------------------------------------|--|--------------------------------------|
| young college healthy <u>5.0</u> | old college healthy <u>4.4</u> | young gr. sch. healthy <u>3.7</u> | young college ill <u>3.7</u> | old gr. sch. healthy <u>3.5</u> | old college ill <u>3.3</u> | young gr. sch. ill <u>3.0</u> | old gr. sch. ill <u>2.6</u> |
|---|---|--|---------------------------------------|--|-------------------------------------|--|--------------------------------------|

4. Age by race by health

| | | | | | | | |
|---|---------------------------------------|---|-------------------------------------|---------------------------------------|-----------------------------------|-------------------------------------|-----------------------------------|
| young white healthy <u>4.7</u> | old white healthy <u>4.3</u> | young Negro healthy <u>4.0</u> | young white ill <u>3.7</u> | old Negro healthy <u>3.6</u> | old white ill <u>3.2</u> | young Negro ill <u>3.0</u> | old Negro ill <u>2.8</u> |
|---|---------------------------------------|---|-------------------------------------|---------------------------------------|-----------------------------------|-------------------------------------|-----------------------------------|

Note: Means underlined by the same line are not significantly different according to Tukey's *hsd* test (.05 level).

b. Age by education ($p = .005$). Age had a stronger effect among the educated than among the uneducated. The young educated were rated significantly higher than the old educated, whereas the old and young uneducated were not significantly different from each other.

c. Education by health ($p = .001$). Education had a stronger effect upon the healthy than upon the unhealthy. In this case, however, the middle category contained both the ill educated and the healthy uneducated, with the healthy educated rated significantly higher and the unhealthy uneducated rated significantly lower.

d. Race by health ($p = .05$). Race was found to have a stronger effect among the healthy than among the ill. Here all four means were significantly different from each other, and in the following order: white, healthy; Negro, healthy; white, ill; and Negro, ill.

Second order interactions, significant at the .05 level or less, may be summarized as follows:

e. Sex by education by health ($p = .05$). The education by health interaction (see *c* above) was stronger among the male subjects than among the female.

f. Age by education by race ($p = .001$). The age by education interaction (see *b* above) appeared only in respect to the whites.

g. Age by education by health ($p = .001$). The education by health interaction (see *c* above) was stronger in regard to the young than to the old.

h. Age by race by health ($p = .05$). The race by health interaction (see *d* above) was stronger in regard to the old than to the young.

D. DISCUSSION

As hypothesized, all four stimulus factors (age, health, race, and education) significantly affected friendship ratings made by white college students. Of greater interest than this general indication of the values of health, youth, and education among this population is the relative weighting of each effect. Because most mean squares in the analysis are tested by a separate error term, direct comparison of mean squares was not appropriate. The F ratios for each factor, although they cannot be compared statistically, present the following rank order: health, education, race, and age. Part of this order is confirmed statistically in the race by health interaction, where the Negro healthy person is rated significantly higher than the white ill person, and in the age by education interaction, where the old educated person was rated

significantly higher than the young uneducated person. The findings from this study thus do not agree with those of Triandis (14, 15), who found race to have the greatest effect upon social distance, nor with studies reporting favorable attitudes toward the physically disabled or elderly.

Reasons for the first of these differences may be related to a changing social climate in the years between the studies,³ to differences in populations tested, or to differences in method. Triandis utilized a full social distance scale, of which the highest point was "I would accept this person as a close personal friend." It is possible that the stronger effects found for race in the Triandis studies were associated with the lower part of the scale, dealing with acceptance of the person as a neighbor, a landlord, or university student, or a compatriot. Another difference between Triandis's experiments and this one is in the definition of social class; Triandis used occupation, whereas the present study used education. This difference may also be related to the contrasting results in that many young upwardly mobile persons in this society may temporarily have lower-class occupations, whereas a person with only a grade school education is much more likely to be limited permanently to the lower social classes.

In relation to illness, one difference between the present and earlier studies is in the descriptive terms used. The present study utilized the dichotomy, "healthy, chronically ill," whereas earlier studies focused upon specific physical disabilities, such as "crippled," "blind," or "deaf." To the extent that such individuals may be considered healthy, even though disabled, these studies may have focused upon groups different from those in the present study. Friendship with the chronically ill may be visualized largely in terms of bedside visits—a kind of friendship which, in Thibaut and Kelley's terms (13), may offer few rewards to the visitor. Whatever the explanation, however, the present findings suggest that social rejection is one aspect of the psychological climate surrounding the chronically ill. Good health is evidently so pervasive a value in this culture [see Wright (16)], as to result in the rejection of those with poor health.

Certain findings in this study may be interpreted optimistically in relation to efforts to eliminate prejudice. If lack of education produces more social distance than does race, for example, an eventual reapproachment between the

³ Data for the present study were collected in the spring of 1963, a time when the so-called Negro revolution was active and receiving national attention. The students at the university where the data were collected, however, were not to any large extent participants in this movement.

racism may be possible as a result of improved education for Negroes. Likewise, the relatively weak effect due to age also offers hope for decreased discrimination against the elderly, as levels of physical health are improved. The prominence of the effects of health and education are thus encouraging, since these factors, in contrast to race and age, are amenable to improvement.

Two of the significant interactions in this study were related to the sex of the subject: (a) women rated the white stimulus person significantly higher than did the men, whereas the two sexes did not differ in their ratings of the Negro; and (b) the education by health interaction was stronger for the men than for the women. Although the women thus demonstrate greater Negro-white differences than do the men, the men tended to devalue the good health of an uneducated person, or the education of a person who was ill.

This latter tendency, although found in respect to the male subjects in one instance, was to a large extent characteristic of the sample as a whole. Thus, all but one⁴ of the remaining significant interactions indicate such an effect. The first negative quality in a stimulus person apparently had a stronger effect upon the friendship ratings than did a second or third. In order to explore this hypothesis further, means from all first order interactions, whether significant or not, were examined. Plus values were assigned to the white, educated, healthy, and young characteristics, and minus values were assigned to the opposite characteristics. Mean differences between the ++ cell and each of the two +- cells was greater in each of the six cases than differences between the other +- cell and the -- cell ($p < .005$, the sign test). If the stimulus person was a Negro, for example, whether or not he was educated, healthy, or young made less difference than did these qualities in relation to a white person. Likewise, age, health, and race made more difference among the educated; education, age, and race among the healthy; and education, race, and health among the young.

The data from all first order interactions among the stimulus variables thus indicate that distances between categories decrease as overall social distance increases. This effect may be due to stereotypy, in which the Negro, the sick, the uneducated, or the elderly are each categorized as members of the rejected group within which little or no further distinctions are made. This effect may also be a manifestation of a perceptual distortion in which fewer distinctions are made between social objects perceived as distant from the self. Whatever the explanation, however, all the positive qualities appear to carry decreased weight when appearing in the rejected groups. The negative effects

⁴ The single exception was the age by race by health interaction in which an opposite effect appeared (see Results section).

due to race, poor health, lack of education, and old age thus tended to be prepossessing. This disregard for the positive attributes of the members of a rejected group is a striking indication of the prejudicial nature of attitudes toward the old and the ill, as well as toward the uneducated and the Negro.

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THE EFFECT OF PREPARATORY ACTION ON BELIEFS CONCERNING NUCLEAR WAR: A TEST OF SOME ALTERNATIVE EXPLANATIONS*¹

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A. INTRODUCTION

Lerner (9) studied the effect of reading a civil-defense pamphlet dealing with the construction and stocking of private fallout shelters (4) on attitudes and beliefs regarding nuclear war. His results indicated that two types of cognitive changes took place. There were direct changes with respect to issues specifically dealt with in the pamphlet, such as an increase in the belief that shelters would save lives. Of greater interest than these direct changes were the indirect changes in beliefs not discussed in the pamphlet: subjects came to believe that war was more likely than they had originally thought and that nuclear weapons are not so different from ordinary weapons.

These indirect changes were interpreted as indicating a process of dissonance reduction (6). The cognition "I have expended effort in preparing for an event" (i.e., have read and thought about how to survive the event) is dissonant with the cognition "the event will not occur." Thus, increasing one's belief that war will occur is one of several ways in which dissonance can be reduced.

Although the findings of the study are interesting in their own right, they lend themselves to interpretations other than that of the reduction of dissonance. Certainly in Lerner's study the communication was put forth by an authoritative source, the Office of Civil Defense, which presumably has a great deal more information relevant to the likelihood of nuclear war than does the average student. If we assume that the Office of Civil Defense represents an authoritative, highly credible source of information, a verbal statement of a subject's implicit reaction to the experimental situation might appear as follows: "I am being asked to read a pamphlet on fallout shelters

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¹ This paper is adapted from a thesis submitted by the senior author to the Department of Psychology, University of Kentucky, in partial fulfillment of the requirements for the M.A. degree.

prepared by the Office of Civil Defense. Surely this would not be done if the experts didn't feel that war was a definite possibility. If the experts think that war is likely, then it must be so." Thus, the indirect opinion changes may be due in part to the effect of a credible communication from an authoritative source (2, 7).

Another factor that could conceivably account for the apparent increase in the belief that a nuclear war is likely to occur is the explicit, anxiety-reducing message in the pamphlet—we will be saved if we prepare now with bomb shelters. The literature on perceptual defense (1, 5) provides some basis for this hypothesis. The new information contained in the pamphlet—that it is possible to survive an attack—may make the possibility of war less threatening to the subject than it was before, and he may be more willing than he was originally to admit to "reality"—that is, to the likelihood of war.

The present study was designed to provide information concerning the tenability of each of the foregoing alternative explanations. If a credible communication from an authoritative source (prestige) induced the majority of the opinion change, we might expect to find changes occurring before the pamphlet is actually read—that is, merely as a result of subjects being told that they will read a pamphlet from the Office of Civil Defense dealing with the construction and the stocking of fallout shelters. If anxiety is reduced by the communication, it would be expected that people low in reported anxiety would also be more certain that war will occur and that the outcome of such a war would be less disastrous than originally anticipated.

In addition to the above hypotheses, there is evidence to indicate that men and women might react differently to the communication. In an unpublished study, Bramel² found that when males are made anxious about the consequences of nuclear war they come to advocate increased aggression. Females, on the other hand, tend to become increasingly pacifistic. American women also tend to be more conforming than men (3; 8, p. 223); therefore, it is expected that while women will show greater opinion change as a result of the communication, they will advocate aggression less strongly than will men.

B. METHOD

1. Subjects

Ss were 160 students (40 males and 120 females) from six sections of the same course at the University of Kentucky. All sections were tested on the same day. Three of the sections were assigned to each of two experimental conditions.

² Personal communication from D. Bramel to M. J. Lerner.

2. Instruments

Three questionnaires were used. The first, called the War Questionnaire in this paper, consisted of 12 questions related to opinions concerning nuclear war.³ The second, called the Innocuous Questionnaire, dealt with national and international issues not related to nuclear war. The third, called the Opinion of Pamphlet Questionnaire, consisted of five questions and was used to measure opinions concerning the pamphlet itself—e.g., was the material well organized? The pamphlet *Ten for Survival*, employed by Lerner (9), was used in this study.

3. Procedure

The introduction to the study was the same for all groups. Ss were told that the experimenters were conducting an opinion survey of college students that was part of a nation-wide government-financed poll on opinions regarding national and international affairs. This introduction was thought to be sufficiently vague so that the contents of both the War Questionnaire and the Innocuous Questionnaire could fall under the rubric "national and international affairs."

Because there was both a control group and an experimental group in each section and because the experimental manipulations were different for each of the two groups, it was necessary to create a situation in which the groups could be treated differently without the subjects' becoming aware of the true nature of the study. As the experimenter entered the room, he mentally divided the room in half to split the males and females as equally as possible. Throughout the session he handed materials to the experimental Ss, while his assistant handed ostensibly the same materials to the control Ss. As is discussed later, different materials were given to control Ss and to experimental Ss. The formats of the War Questionnaire and Innocuous Questionnaire were as similar as possible, and each was entitled World Affairs Questionnaire. By making the questionnaires appear similar, it was hoped that Ss who were seated next to each other and who were on either side of the imaginary line dividing the groups would not become aware of the fact that two different questionnaires were being used simultaneously. The Opinion of Pamphlet Questionnaire was given at the end of the session to lend authenticity to the pamphlet-reading task.

The first of the two experimental conditions, called the Replication Condition, was designed as a replication of Lerner's study. The second, the Prestige

³ See Appendix.

Condition, was used to provide tests for the operation of prestige and a test of opinion due to pamphlet reading alone.

a. Replication Condition. Ss were introduced to the study as described earlier. The experimental (E) Ss were then given the Innocuous Questionnaire, while the control (C) Ss were given the War Questionnaire. After this material had been collected, the pamphlet was presented. The presentation was the same for both conditions: "I'm going to ask you to read this pamphlet called *Ten for Survival*. It has been prepared by the Office of Civil Defense for the purpose of providing information to civilians on how to prepare for a nuclear war and how to survive in the event of such a war." Ss read the pamphlet for approximately eight minutes. The following statement was then made to provide a rationale for E to reverse the questionnaires: "Before you evaluate the pamphlet, I'd like to get your opinions on some other national and international issues." The E group was then given the War Questionnaire, while the C group received the Innocuous Questionnaire. Finally, the Opinion of Pamphlet Questionnaire was completed by all Ss.

b. Prestige Condition. Ss were introduced to the study as above, and the Control Prestige (CP) Ss completed the War Questionnaire, while the Experimental Prestige (EP) Ss completed the Innocuous Questionnaire. The pamphlet was then presented, but with this additional statement: "Before you read the pamphlet, I'd like to get your opinions on some other national and international issues." This time the CP Ss filled out the Innocuous Questionnaire, while the EP Ss completed the War Questionnaire. The pamphlet was then read, after which the Opinion of Pamphlet Questionnaire was completed by all Ss. Finally, there was a second administration of the War Questionnaire to obtain a measure of opinion change due to pamphlet reading. In order to make this procedure seem plausible, the following explanation was given: "Now that you've had a chance to bring your ideas on nuclear war to a focus, I'd like you again to fill out the questionnaire dealing with nuclear war."

C. RESULTS⁴

There was a change in beliefs regarding the likelihood of war as a result of reading the pamphlet, but the effect was not as strong as that found by

⁴ Choices for each question (with the exception of Question 10) were numbered from one to six, starting with the left-hand choice, for purposes of data analysis. Means and standard deviations are reported in terms of these numbers. Analyses of variance are based on a model given by Winer (11, pp. 241-243) for unequal cell frequencies. Error terms for *t* tests were derived from these analyses. All significance tests are two-tailed, unless otherwise specified. Means and standard deviations for the War questions are reported in Table 1.

Lerner. An analysis of variance among conditions shows no significant effects ($F = 2.156, p > .10$). An alternative test was made by dividing C and E groups into those who felt war was likely (Choices 1 to 3) and those who felt war was unlikely (Choices 4 to 6). Figure 1 shows the frequencies in the cells. A chi square test shows significance at the .05 level.

The effects of the Prestige Condition are seen most clearly (see Table 1) on the direct-change questions concerning material mentioned in the pamphlet (Questions 7 and 11). For Question 7 the difference between the means of

| | C | E | |
|-----------------------------|----|----|-----|
| Choices 1 - 3 (likely) | 35 | 26 | 61 |
| Choices 4 - 6 (unlikely) | 47 | 14 | 61 |
| | 82 | 40 | 122 |

$\chi^2 = 4.50$

FIGURE 1
CONTINGENCY TABLE OF CHOICES ON QUESTION 1

the C and EP groups in the Prestige Condition is significant at the .025 level ($t = 1.992, df = 150$, one-tailed test). The change is in the predicted direction; people believed more strongly that shelters would save lives. The change is significant for females alone ($2.570, df = 98, p < .02$), but not for males alone. People also came to believe that shelters would provide security, again merely as a function of the presentation of the pamphlet. The difference between C and EP group means is not significant for males alone or for the sexes combined, but it is significant for females alone ($t = 2.091, df = 85, p < .05$).

No evidence was found for the type of anxiety-reduction process originally hypothesized: namely, that low-anxious subjects might think war more likely than they had originally thought. A product-moment correlation for the E group between responses on the "likelihood of war" question (No. 1) and the "anxiety" question (No. 9) is not significant ($r = -.015$).

There did seem to be some sort of anxiety-reduction process related to the outcome of war rather than to the likelihood of war. Two questions (Nos. 3 and 4) dealt with the outcome of war. These questions were included to assess beliefs about the severity of nuclear war. People low in reported anxiety (Question 9) tended to feel that the outcome of war would be less disastrous

TABLE 1
MEANS AND STANDARD DEVIATIONS OF WAR QUESTIONNAIRE ITEMS

| Question | Sex | C | | E | | EP ₁ | | CP ₂ | | EP ₂ | |
|----------|-----|-----------|------|-----------|------|-----------------|------|-----------------|------|-----------------|------|
| | | \bar{X} | SD | \bar{X} | SD | \bar{X} | SD | \bar{X} | SD | \bar{X} | SD |
| 1 | M | 3.89 | 1.73 | 3.00 | 1.32 | 3.46 | 1.01 | 3.88 | 1.45 | 3.31 | .99 |
| | F | 3.75 | 1.28 | 3.53 | 1.17 | 4.04 | 1.10 | 3.80 | 1.15 | 3.25 | 1.33 |
| 2 | M | 2.89 | 1.33 | 2.37 | .86 | 2.54 | .93 | 3.00 | 1.22 | 2.46 | .84 |
| | F | 3.02 | 1.36 | 3.09 | 1.26 | 3.13 | .34 | 2.80 | 1.05 | 3.09 | 1.21 |
| 3 | M | 2.47 | 1.60 | 3.12 | 1.61 | 2.77 | 1.31 | 2.33 | .88 | 2.92 | 1.27 |
| | F | 2.11 | 1.33 | 1.44 | .79 | 1.87 | 1.05 | 2.55 | 1.21 | 2.50 | 1.29 |
| 4 | M | 3.89 | 1.80 | 2.87 | 1.45 | 3.15 | 1.56 | 4.11 | 1.56 | 2.77 | 1.31 |
| | F | 3.95 | 1.31 | 4.44 | 1.48 | 4.54 | 1.00 | 4.03 | 1.09 | 4.21 | .91 |
| 5 | M | 2.63 | 1.49 | 2.25 | .97 | 2.77 | 1.25 | 2.89 | 1.85 | 2.92 | 1.07 |
| | F | 2.44 | 1.26 | 2.70 | 1.29 | 2.54 | 1.41 | 3.17 | 1.36 | 2.54 | 1.19 |
| 6 | M | 5.37 | .93 | 4.62 | .99 | 5.85 | .77 | 5.44 | .83 | 4.77 | .89 |
| | F | 5.22 | .82 | 4.97 | .90 | 5.37 | .75 | 4.94 | .78 | 5.08 | .81 |
| 7 | M | 2.89 | 1.83 | 2.12 | .60 | 2.92 | 1.44 | 2.55 | 1.34 | 2.39 | 1.33 |
| | F | 2.97 | 1.55 | 1.73 | .87 | 1.12 | 1.09 | 2.33 | 1.22 | 1.75 | .83 |
| 8 | M | 5.42 | 1.05 | 5.50 | 1.00 | 4.54 | 1.69 | 5.22 | 1.31 | 4.85 | 1.41 |
| | F | 4.87 | 1.46 | 4.70 | 1.55 | 5.42 | 1.11 | 5.22 | 1.13 | 5.46 | 1.04 |
| 9 | M | 3.42 | 1.36 | 3.25 | .83 | 3.42 | 1.26 | 3.55 | 1.34 | 3.17 | .80 |
| | F | 3.95 | 1.15 | 3.73 | 1.40 | 3.12 | 1.36 | 3.14 | 1.00 | 3.00 | 1.19 |
| 10 | M | 3.63 | 2.11 | 3.12 | 2.09 | 3.08 | 1.73 | 2.78 | 2.48 | 3.08 | 1.73 |
| | F | 2.32 | 1.24 | 2.15 | 1.28 | 2.08 | 1.56 | 2.72 | 1.62 | 2.14 | 1.36 |
| 11 | M | 3.16 | 1.69 | 2.12 | 1.05 | 3.23 | 1.62 | 2.44 | 1.42 | 2.61 | 1.21 |
| | F | 3.06 | 1.61 | 1.94 | .98 | 2.33 | 1.34 | 2.22 | 1.25 | 1.58 | .86 |
| 12 | M | 1.37 | .74 | 1.37 | .48 | 1.69 | .72 | 1.44 | .68 | 1.92 | .73 |
| | F | 1.46 | .94 | 1.41 | .74 | 1.25 | .72 | 1.28 | .56 | 1.17 | .37 |

Note: The group designations are C = Control, E = Experimental, EP = Experimental Prestige, and CP = Control Prestige.

than most people expected ($r = -.362, p < .05$) and that the destructive effects of nuclear weapons had been overestimated ($r = .389, p < .05$).

Questions 3 and 4, which dealt with the anticipated outcome of war, also showed interesting sex differences. On both questions, males moved in the direction of a more optimistic outlook, while females became more pessimistic. Generally speaking, there were no sex differences in the C group,

marked differences in the EP group, and even greater differences in the E group where the pamphlet was both presented and read. For Question 3, the overall sex effect is significant at the .001 level ($F = 15.556$). Within conditions, the differences between males and females were as follows: C group $t = .782$, $p > .10$; EP group $t = 2.031$, $p < .05$; E group $t = 3.342$, $p < .01$. On Question 4, the overall sex difference is significant at the .001 level ($F = 13.095$), and within-condition tests are as follows: C group t , not significant; EP group $t = 4.058$, $p < .001$; E group $t = 2.774$, $p < .01$.

It was also hypothesized that low-anxious subjects would advocate more aggressive means of dealing with the threat of war than would high-anxious subjects, but no relationship between anxiety and aggression was found ($r = .108$).

As might be expected, reading the pamphlet induced opinion change. This was shown by comparing the two War Questionnaire measurements for the EP group. One measurement was taken after presentation of the pamphlet; the other was taken after the pamphlet had been read. Differences between the two administrations were found on the questions directly related to the pamphlet content. On Question 7 the change is significant at the .001 level ($t = 3.658$, $df = 35$). On Question 11, the change is also significant at the .001 level ($t = 4.473$, $df = 35$). People changed their opinions regarding the value of shelters even further after reading about how to build and stock them.

Other questions are of interest because they reflect sex differences. Women consistently placed war farther in the future than did men (Question 2— $F = 7.939$, $p < .01$). Women were also more tolerant of foreign aggression than were men, as determined by Question 10. On seven situations, the greater the number of items checked, the lower the tolerance for foreign aggression. Women checked fewer situations than did men ($F = 13.279$, $p < .001$). The difference is apparently independent of the experimental manipulations, since C group males and females differ significantly from each other ($t = 3.260$, $df = 80$, $p < .01$).

Question 6 is the only one on which men showed a significant change. Although there is no significant prestige effect, the difference between C and E groups is significant for males in the predicted direction ($t = 2.035$, $df = 25$, $p < .04$, one-tailed test). The difference is also significant for males and females combined ($t = 2.158$, $df = 120$, $p < .05$). Reading the pamphlet apparently led people to believe that life would be less terrible after an attack than they had originally thought.

No differences were detected on Questions 5 and 12. On Question 5, Ss

felt that it was slightly likely that Russia would launch an attack. Question 12 showed a ceiling effect. Ss thought the civil-defense information was valuable to begin with, and all scores clustered at the favorable end on the scale.

D. DISCUSSION

The study provided a partial replication of Lerner's findings. The subjects did show an increase in the belief that war would occur, although the effect was not as great as that found in Lerner's study. The present study was conducted with college students as subjects, while Lerner's study was conducted at the high-school level. Perhaps college students are less susceptible to influence than high-school students, and hence showed less change than the high-school subjects. This study also corroborated Lerner's findings that subjects, as a result of reading the pamphlet, would increase their belief that shelters would save lives.

The hypothesis that the presentation of the pamphlet is sufficient to induce opinion change is confirmed. The "prestige" manipulation is effective mainly for females and almost exclusively on the questions relevant to material directly mentioned in the pamphlet. The objection might be raised that the questions were merely more sensitive to opinion change than the questions in Lerner's study. However, other questions showed changes at least as great as that found with the direct-change questions.

As has been shown in many studies, the source of the communication plays a part in opinion change. The authors assumed in this study that the Office of Civil Defense was a relatively prestigious source of information. Subsequent to the completion of this study, the research group at the Department of Communication of Michigan State University published its findings on civil-defense belief patterns (10). Among other findings, the Michigan State group reported that the Office of Civil Defense was rated by a large number of people as being a highly credible source of information. Thus, the assumption made in the present study seems valid.

The authors hypothesized that reported anxiety would be related inversely to belief in the likelihood of war. There appeared to be a relationship between "anxiety" and the *outcome* of war, but not between "anxiety" and the likelihood of war. People low in reported anxiety tended to be more optimistic about the outcome of nuclear war than people high in reported anxiety. Certainly a one-item measure of "anxiety" ("discomfort" in this case) cannot be particularly sensitive because definitions of discomfort vary widely, as does the extent to which different individuals report "anxiety." However, the fact that a relationship exists gives some indication that the effect might be found

to be increased, if more sensitive measures were available. The hypothesis regarding the relationship between "anxiety" and the advocacy of aggression in the form of a pre-emptive attack on Russia was not confirmed.

Not all of the findings in this study can be attributed to the operation of anxiety. The fact that indirect opinion changes do occur that cannot be attributed to the factors indicated or to the actual content of the pamphlet implies that a process of dissonance reduction may have operated.

As the authors hypothesized, women were found to be generally more strongly influenced than men by a persuasive communication. Women tended to be more pacifistic than men and placed the occurrence of war farther in the future. Women became more pessimistic than men about the outcome of war as a result of reading the pamphlet, while men tended to become more optimistic than women.

The findings of this study have relevance for many types of opinion-and-attitude-change studies in which subjects are prepared in some way for the subsequent presentation of a persuasive communication. If the efficacy of a particular communication is to be investigated, it would be helpful to remember that some opinion change (or perhaps resistance to it) may be a reaction to implicit messages inherent in the context of the presentation of the persuasive communication.

APPENDIX

WORLD AFFAIRS QUESTIONNAIRE

Listed below are a number of questions about world affairs. Read each item and decide on the most accurate answer in your opinion.

(In each question circle the *one* alternative that comes closest to the most accurate answer.)

1. Considering all factors, nuclear war with the Communists is —

| | | | | | |
|-------------------|------------------------|--------------------|----------------------|----------------------------|------------------------------|
| almost certain | probably will occur | slightly likely | slightly unlikely | probably will not occur | definitely will not occur |
|-------------------|------------------------|--------------------|----------------------|----------------------------|------------------------------|
2. The most accurate guess is that if a nuclear war does occur it will happen within the next —

| | | | | | |
|---------------|--------------|-----------------|-----------------|----------------|------------------------|
| five years | ten years | twenty years | thirty years | fifty years | sixty or more years |
|---------------|--------------|-----------------|-----------------|----------------|------------------------|
3. If a nuclear war were to occur, the outcome would probably be — than most people expect.

| | | |
|-----------------------------|-----------------------------|-----------------------------|
| much more disastrous | somewhat more disastrous | slightly more disastrous |
| slightly less disastrous | somewhat less disastrous | much less disastrous |

4. Most people tend to — the destructive effects of nuclear weapons.
- | | | | | | |
|-------------------------|----------------------------|--------------------------|---------------------------|-----------------------------|--------------------------|
| greatly overestimate | moderately overestimate | slightly overestimate | slightly underestimate | moderately underestimate | greatly underestimate |
|-------------------------|----------------------------|--------------------------|---------------------------|-----------------------------|--------------------------|
5. How likely is it that the Russians would launch a nuclear attack against the U.S. if they believed they could do so and suffer little loss to themselves?
- | | | | | | |
|---------|----------------------|--------------------|----------------------|--------------------------|----------------------------|
| certain | probably the case | slightly likely | slightly unlikely | probably not the case | definitely not the case |
|---------|----------------------|--------------------|----------------------|--------------------------|----------------------------|
6. If there were a nuclear war with the Communists, — (circle only one)
- Life will be much better—especially with the Communist menace ended.
 - Life will be somewhat better—people will work hard and rebuild our country.
 - Life will be much the same as it is today—we will go to school, work, have dates, etc.
 - There will be some changes—people will have to struggle again.
 - The widespread damage will mean that almost everyone will be faced with poverty and disease.
 - Almost everything will be different—so many people will be killed and maimed that life will be closer to the jungle than anything we know today.
7. If we prepare now with shelters, etc., we may be able to save a majority of those lives that would have been lost in a nuclear war.
- | | | | | | |
|--------------------|-------------------|-------------------|----------------------|----------------------|-----------------------|
| agree very much | agree somewhat | agree a little | disagree a little | disagree somewhat | disagree very much |
|--------------------|-------------------|-------------------|----------------------|----------------------|-----------------------|
8. From an objective point of view, it would probably be to the advantage of the free world if the U.S. launched a preventive nuclear attack on Russian rocket bases.
- | | | | | | |
|--------------------|-------------------|-------------------|----------------------|----------------------|-----------------------|
| agree very much | agree somewhat | agree a little | disagree a little | disagree somewhat | disagree very much |
|--------------------|-------------------|-------------------|----------------------|----------------------|-----------------------|
9. When I read about ways to prepare for the possibility of a nuclear attack, I tend to become —
- | | | | | | |
|----------------------|-------------------------|-----------------------|---------------------------|-----------------------------|----------------------------|
| greatly reassured | moderately reassured | slightly reassured | slightly uncomfortable | moderately uncomfortable | extremely uncomfortable |
|----------------------|-------------------------|-----------------------|---------------------------|-----------------------------|----------------------------|
10. Under what conditions might it be advisable for the United States to launch a nuclear counter attack against Russia? (Check those which make it advisable.)
- If West Germany were invaded by East German troops.
 - If the Communist Chinese attacked Formosa.
 - If Russia launched a non-nuclear attack on England.
 - If Russian, or Russian led troops, invaded a South American country.
 - If Russian, or Russian led troops, invaded Canada.
 - If Russia launched a nuclear attack on England.
 - If Russia launched a nuclear attack on Canada.
11. A private bomb shelter would be worth its cost in providing security in the world today.
- | | | | | | |
|--------------------|-------------------|-------------------|----------------------|----------------------|-----------------------|
| agree very much | agree somewhat | agree a little | disagree a little | disagree somewhat | disagree very much |
|--------------------|-------------------|-------------------|----------------------|----------------------|-----------------------|
12. How valuable would it be for you to know more about the effects of a nuclear blast and fallout on a civilian population?
- | | | | | | |
|-------------------|-------------------------|-----------------------|-------------------------|---------------------------|--------------------------|
| very necessary | moderately necessary | slightly necessary | slightly unnecessary | moderately unnecessary | extremely unnecessary |
|-------------------|-------------------------|-----------------------|-------------------------|---------------------------|--------------------------|

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THE RESISTANCE OF THE CLOSED MIND TO A NOVEL AND COMPLEX AUDIO-VISUAL EXPERIENCE*

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A. INTRODUCTION

By defining psychology as the study of behavior, psychologists indicate that their interests lie in understanding specific reactions to specific situations. Yet, because of the complexity and symbolic nature of many responses, psychology tends to describe this behavior on a theoretical level removed from that of experience. This is particularly true in the realm of esthetics. Theoretically, one can speak of sublimation, imagination, conation, or perhaps creativity; but in specific behavioral situations dealing with esthetics one tends to become wary. Leeper and Madison (5) have raised theoretical questions concerning emotional fullness and emotional deprivation within the personality in the tradition of Jung and Maslow: "Pressure to conform and to succeed have another insidious effect . . . they tend to produce an excessive concentration on one single activity and tend to have corrosive effects on the emotional satisfactions inherent in this activity." Emotional poverty can also result from the "belittling of concrete perceptual experiences. . . . Some of our emotional experiences must spring from things around us that impinge directly, immediately, concretely upon us, that are perceived as having color, warmth, and vitality . . ." (5, p. 265).

Will theoretical questions dealing with esthetics lend themselves to experimentation? An early attempt to treat musical talent objectively was made by Carl E. Scashore (10) when he developed the Seashore Measures of Musical Talents, testing pitch, loudness, time, timbre, rhythm, and tonal memory. Rankin (8) correlated scores on the Seashore battery with scores of manifest anxiety, using the Taylor scale, and found significant relationships between measures of loudness, time, and timbre and degree of manifest anxiety.

Wallach (11) attempted to correlate anxiety with symbolic sexual arousal induced by listening to classical music. A measure of anxiety was obtained from the neuroticism scale of the Maudsley Personality Inventory. Sexual

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arousal was assessed by content analysis of stories written after the music was played. Dividing his groups into introverts and extraverts according to the extraversion-introversion scale of the Maudsley Personality Inventory, Wallach found that anxious introverts experienced the highest symbolic sexual arousal and nonanxious introverts experienced the lowest symbolic sexual arousal, with the extravert groups falling between the two introvert groups. Preference for the music correlated significantly with the degree of symbolic sexual arousal.

In a summary of the literature utilizing cross-cultural data, Kavolis (4) emphasizes the link between artistic interest and occupancy of expressive roles and the link between artistic interest and role strain. Kavolis considers expressive roles to be those that are oriented toward spontaneous expression of an internally integrated system. Among other factors, the spontaneity of expressive roles is based upon ambiguity tolerance. Role strain is related more to such factors as nonconformity, self-sufficiency, and role change than to neurotic deviation. Of three types of artistic interest distinguished by Kavolis—traditional artistic interest, tension-reducing artistic interest, and tension-inducing artistic interest—the third type of interest is most relevant to this study. Tension-inducing artistic interest is the type based on ambiguity tolerance and a need for self-actualization, and is associated with exploratory and variety-seeking creativity. This third type generates tension that is required by the noncompulsive person for fulfillment and "is presumably promoted by a decline in dogmatism" (4, p. 35).

A note may be in order at this point regarding the interpretation of findings linking artistic preference with such variables as dogmatism, role discomfort, internal restraints, etc. An extremely complex set of relationships is probably indicated by these findings. It appears that caution should be exercised in interpreting the nature of these relationships. Kavolis, for example, yields to the temptation of imputing causality where only quite general positive relationships have been observed: "Role strain may generate artistic interest" (4, p. 34); "creative artistic interest is presumably promoted by a decline in dogmatism" (4, p. 35); "expressive needs are, in part, a product of ambiguity tolerance" (4, p. 35), etc. Justification for inferring causality in extremely complex individual-group dynamics is difficult to demonstrate; indeed, it is for this reason that the subject matters of artistic abilities and preferences, as well as a number of other expressions of creativity, pose such problems for the psychology of thought and imagination.

Barron has experimentally and intensively studied creative and noncreative groups. He provides a clear summary of his findings as follows:

I would propose the following statements as descriptive of creative artists and perhaps also of creative scientists: Creative people are especially observant, and they value accurate observation (telling themselves the truth) more than other people do. . . . They see things as others do, but also as others do not. They are thus independent in their cognition, and they also value clearer cognition. . . . They are born with greater brain capacity; they have more ability to hold many ideas at once, and to compare more ideas with one another—hence to make a richer synthesis. Their universe is more complex, and in addition they usually lead more complex lives, seeking tension in the interest of the pleasure they obtain upon its discharge. They have more contact than most people do with the life of the unconscious—with fantasy, reverie, the world of imagination. They have exceptionally broad and flexible awareness of themselves. The self is strongest when it can regress (admit primitive fantasies, naive ideas, tabooed impulses into consciousness and behavior), and yet return to a high degree of rationality and self-criticism. The creative person is both more primitive and more cultured, more destructive and more constructive, crazier and saner, than the average person (1, p. 9).¹

In an area such as esthetics, which involves a large number of symbolic representations, it is doubtful whether it is possible to isolate a single meaningful variable—or variable syndrome—that mediates artistic preference in the manner that the latent-attitude model mediates much social behavior. The concept of attitude refers to a tendency to react in a positive or negative manner to some aspect of the environment that relates latent psychological variables with observable behavior. The attitude questionnaire attempts in a rough way to measure these latent variables. A variable syndrome related to the theme under discussion is that of dogmatism, a concept proposed by Rokeach (9), that refers to a relatively closed cognitive state. Rokeach asserts that dogmatism

. . . could be associated with any ideology regardless of content, an authoritarian outlook on life, and intolerance toward those with opposing beliefs, and a sufferance of those with similar beliefs. To say that a person is dogmatic, or that his belief system is closed, is to say something about the way he believes and the way he thinks—not only about single issues but also about networks of issues. The closed mind, even though most people cannot define it precisely, can be observed in the "practical" world of political and religious beliefs, and in the more academic world of scientific, philosophic, and humanistic thought. In both of these worlds there is conflict among men about who is right and who is wrong, who is rational and who is rationalizing, and conflict over whose convictions are dogmatic and whose intellectual (9, p. 45).

¹ Also see Barron (2) for more recent data relating personality variables with esthetic preferences.

The syndrome of characteristics as represented by measures on the Dogmatism Scale can be related to specific behavioral situations. For example, dogmatic individuals are said to have an aversion for situations that do not fall quickly into some identifiable structure. Novelty is perceived as a threat; when a situation is not defined in terms of an established belief-disbelief system, the need for structure becomes frustrated and a sense of helplessness results, with its associated increase in anxiety level. Bernard Mikol (7), a student of Rokeach, tested the hypothesis that persons with closed belief systems tend to be less accepting of new music and its composers than persons with open belief systems. However, possibly owing to the manner in which "novelty" was distinguished from "conventionality" in the musical selections (Bartok and Schönberg compared with Saint-Saëns and Brahms), clear differences between the closed groups and open groups were not consistently drawn.

In his demonstration of the difference between rigidity and dogmatism, Rokeach showed that "closed" (i.e., dogmatic) subjects were not as able as "open" subjects to integrate experimentally changed beliefs into a new belief system. As a result, in a task situation (the Doodlebug problem) requiring this kind of integration, persons scoring high on the Dogmatism Scale had significantly less success in effecting a solution than low scorers, even though they did not significantly differ in intelligence. A later study by Zagona and MacKinnon (12) showed that "closed" subjects were significantly less able than "open" subjects to conceptualize an integration of two hypothetical social systems theorized to be interdependent. On the verbal level, with the use of a modification of the Remote Associations Test (6), it was found that high-dogmatism scorers have significantly more difficulty in effecting verbal integrations than do low-dogmatism scorers (14). In each of these experimental situations, the crucial cognitive feature distinguishing "open" individuals from "closed" individuals appears to be the failure of the latter to integrate or synthesize new problem elements, social beliefs, and verbal concepts, respectively, into new and effective combinations. Can this also be extended to the integration of complex visual and auditory experiences?

The present study attempts to touch upon this question by comparing open groups and closed groups with respect to their acceptance of a unique esthetic experience—selected because of its relevance to several aspects of dogmatism theory. This esthetic experience is in the form of a brief (eight-minute) but tightly knit film called "Begone Dull Care."² Jazz music of a novel nature

² By N. McLaren, E. Lambert, and the Oscar Peterson Trio; National Film Board of Canada, International Film Bureau, 1949.

is heard, while on film are shown lines and colors in motion. The visual portion of the film is intended to be synchronous with the music heard. The effective synthesis of the visual and the auditory perceptions into a "unitary" esthetic experience presents a complex challenge to the viewer-listener.

Dogmatism theory suggests the following hypotheses: (a) high dogmatics would be less accepting of this novel audio-visual experience than would low dogmatics; and (b) this difference in acceptance results from the novelty and lack of structure of the film, and (more importantly) the synthesizing demands it makes upon the viewer.

A line of research relating esthetic preferences to personality characteristics has been followed recently by Frank Barron. In one study (1), Barron made use of a number of "independent" (unyielding) and a number of "dependent" (yielding) subjects, drawn from a subject pool provided by Asch. ("Dependents" were those who submitted to group opinion; "independents" did not.) Barron found that "independence of judgment is linked not only to originality but also to the generalized preference for asymmetry, apparent imbalance and complexity. . . . Subjects of the original Asch experiment were given the figure-preference test, and to a marked degree the independents preferred complex, asymmetrical figures" (1, p. 8).

Zagona and Zurcher (13) observed a high-dogmatic group and a low-dogmatic group in a variety of situations over a four-month period in a classroom setting. Low-dogmatic persons were characterized by spontaneity and dissatisfaction with political, social, and economic affairs. They freely expressed annoyance with authority figures and were as unconcerned about being tardy for class as with maintaining class discussions long after the class was over. High-dogmatic persons were schedule conscious and reacted with "embarrassed clumsiness" when asked to appoint a group leader. Having done so, however, they remained leader-oriented and followed minor regulations meticulously. It appears that high-dogmatic persons can be described as "yielders" and low-dogmatic persons as "independents."

Accordingly, in the present study high-dogmatic persons should indicate figure preferences in the manner of Barron's "yielding" subjects, and low-dogmatic persons should make preferences in the manner of Barron's "independent" subjects. The third hypothesis suggested by dogmatism theory is that "open" subjects will select designs that are more complex and asymmetrical than will "closed" subjects, and that they will prefer the more complex figure in pairs of figures differentiated mainly by complexity or asymmetry.

B. SUBJECTS AND METHOD

From a total of 515 dogmatism scores provided by introductory psychology students, the 44 lowest scorers and the 44 highest scorers were asked to serve as subjects in a study of esthetic preferences. These highest scorers and lowest scorers were further divided into two groups each: (a) very low (60 to 103), $N = 11$; (b) low (109 to 130), $N = 30$; (c) high (180 to 203), $N = 34$; and (d) very high (204 to 217), $N = 10$.

Assembled, all the subjects were shown the film "Begone Dull Care." They were then asked to evaluate the film on an eight-point rating scale ranging from "extremely enjoyable experience" to "extremely distasteful experience." Subjects were also asked to evaluate the film and its creators by circling descriptive adjectives essentially similar to those used by Mikol (7). In addition, a scale consisting of 12 Likert-type items concerning the film was given. Finally, the subjects were asked their preferences in each of the following sets of illustrations from the Graves Design Judgment Test (3): 11, 12, 21, 34, 37, 38, 39, 44, 50, 51, 55, 59, and 61. (Nos. 11, 39, and 55 were included to avoid set, and were not scored.)

C. RESULTS AND DISCUSSION

1. Hypothesis No. 1

High-dogmatic subjects were less accepting of the film than were low-dogmatic subjects, as indicated by the eight-point rating scale from "extremely enjoyable experience" to "extremely distasteful experience." The means formed a consistent trend that is statistically significant at the .01 level, as indicated by an F test (see Table 1). The adjectives describing the film and its creators were not selected in any consistently different way by the four groups, possibly because it may be unjustifiable to assume that "favorable" and "unfavorable" adjectives have objective quantitative value and may thus be arithmetically combined to yield a total score. In any case, adjective selection using Mikol's scheme did not effectively differentiate the groups. It should be noted again that Mikol's success with this method was somewhat inconsistent.

2. Hypothesis No. 2

The differences among the four groups show up clearly in the answers to 12 questions concerning the film. These questions were designed to explore the underlying reasons for differential reactions to the film by these groups. Eleven of the 12 questions differentiated among the groups in the expected

direction. The F test comparison is 7.89, significant beyond the .001 level (see Table 1). See Table 2 for patterns of responses by the four groups to the various items.

TABLE 1
MEAN SCORES ON SELECTED EVALUATIVE PROCEDURES
FOR FOUR GROUPS DIFFERING IN DOGMATISM

| Evaluative procedure | Mean | | | | F | p |
|-----------------------------|-------------|--------|-------|------------|------|------|
| | Very high D | High D | Low D | Very low D | | |
| Eight-point rating scale | 4.0 | 2.8 | 2.4 | 2.2 | 4.15 | .01 |
| Adjectives | | | | | | |
| Creators | 13.8 | 13.7 | 13.4 | 14.6 | .37 | n.s. |
| Film | 13.4 | 13.5 | 13.1 | 12.9 | .03 | n.s. |
| Film questionnaire | 38.7 | 30.8 | 25.6 | 22.4 | 7.89 | .001 |
| Graves Design Judgment Test | 4.5 | 2.7 | 3.9 | 4.3 | 1.80 | n.s. |

TABLE 2
MEAN LIKERT SCORES, OF FOUR GROUPS DIFFERING IN DOGMATISM,
FOR ITEMS EVALUATING THE FILM "BEGONE DULL CARE"

| Statement | Mean* | | | |
|---|-------------|--------|-------|------------|
| | Very high D | High D | Low D | Very low D |
| I think most of the people I know would find the tension from this film unpleasant. | 3.18 | 2.50 | 1.60 | 2.20 |
| The slower part with the blue background was the most relaxing part of the movie. | 4.64 | 5.07 | 4.65 | 3.90 |
| Most of the people I know would find this film confusing. | 4.27 | 3.30 | 2.68 | 2.30 |
| This film would have been much better if it were slowed down enough to recognize more of the designs. | 3.90 | 1.87 | 1.56 | 1.40 |
| This movie shows that only certain colors can be related to certain sounds. | 2.64 | 1.73 | 1.62 | 1.10 |
| This film demonstrates the precise relationship that exists between color and music. | 3.36 | 2.80 | 3.00 | 2.10 |
| Each part of the film had a particular relation to the whole. | 3.55 | 3.90 | 2.12 | 4.00 |
| I tried to anticipate what would come next. | 2.82 | 3.10 | 1.82 | 1.30 |
| It bothered me if my anticipation was wrong. | 1.91 | 1.53 | .91 | .40 |
| This is the type of new experience I could do without. | 4.09 | 2.17 | 1.50 | 1.50 |
| This is a very shallow experience. | 2.73 | 1.67 | 1.47 | 1.80 |
| I disliked this because it was so mixed up. | 2.55 | 1.27 | .88 | .70 |

* The higher the mean, the greater the degree of approval.

The foregoing differences among the groups indicate that high-dogmatic persons disliked this film significantly more than did low-dogmatic persons—apparently because of its novelty, lack of structure, and synthesizing demands.

3. Hypothesis No. 3

The prediction that high-dogmatic persons would choose the more symmetrical and the less complex figure in the sets selected from the Graves Design Judgment Test was not substantiated (see Table 1). The designs in the Graves Test are all rather simple, and perhaps not varied and complex enough to illustrate group differences. Barron (1) used the Welsh Figure Preference Test (in which variety and complexity are much greater than in the Graves Test) and did note differences in the expected direction. Dogmatism seems to be a variable syndrome that influences behavior mainly in situations complex enough to tap more subtle emotional-cognitive components.

In this experiment, dogmatism proved to be a meaningful variable for predicting reactions to a complex audio-visual esthetic experience. By observing dogmatism in behavioral and evaluative situations, it may be possible to discover just where and in what ways this variable influences the lives of individuals. Specific attention to the complexity of experimentally controlled environmental circumstances, and to the emotional-cognitive systems that mediate responses to these circumstances, may aid in the understanding of the responses observed.

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FAMILY SIZE AND SIBLING POSITION AS RELATED
TO MEASURED INTELLIGENCE AND
ACADEMIC ACHIEVEMENT*

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A. INTRODUCTION

Among the various factors that may be related to a child's intelligence test scores and academic achievement are the size of the family and the ordinal position of the child among siblings. A number of investigations have been conducted to study the nature of this relationship. Griffiths (6) observed that the average grades of children in small families were higher than the average grades of children in large families. Buesman's studies (1, 2) revealed that family size was definitely related to academic achievement. Jenkins and Randall (7), in their study "Differential characteristics of superior and unselected Negro students," concluded that the members of the superior group were drawn from comparatively small families. Floud *et al.* (4) observed that size of family was inversely related to success in the selection examination. Fraser's study (5) showed that there was negative correlation between size of family and academic achievement of students.

Damrin's study (3), however, showed that although the children from comparatively small families were generally superior in intelligence and academic achievement to children from large families, the differences between the means did not reach the usually accepted level of statistical significance and were so slight that they may be considered negligible. Witty's study (11) of the only and intermediate high school students showed negligible differences in academic achievement of the two groups.

In regard to ordinal position among siblings, Visher (10) observed that comparatively large numbers of leading American scientists were firstborn children, but Damrin (3) and Schoonover (9) observed that there was no consistent relationship between ordinal position and achievement of students.

A review of the above studies shows that there is need for further exploration in this field. The present study was designed to study the relationship through a different set of data collected from the Indian environment.

* Received in the Editorial Office, Provincetown, Massachusetts, on August 19, 1965. Copyright, 1966, by The Journal Press.

B. SAMPLE

The sample consisted of 1359 randomly selected high school students (age range 14 to 17 years) studying in 22 urban and six rural secondary schools in Lucknow district. Indian society is comparatively conservative, and the principals of girls' schools were reluctant to allow a man to collect data from their schools. The sample, therefore, had to be confined to boys only.

C. COLLECTION OF DATA

1. *Family Size and Ordinal Position*

Data regarding family size and ordinal position among siblings were collected with the help of a questionnaire. In determining the size of a family, only those persons who were dependent on and were actually living with the head of the child's family were included as family members.

2. *Intelligence Test Scores*

Intelligence testing is not one of the routine activities of schools in India; consequently no data for intelligence were readily available. The Progressive Matrices Test was administered to the students as an untimed capacity test in accordance with the instructions given in the manual (8). Since norms for the Indian students were not available, the raw scores were used instead of converting them into PRs.

3. *Academic Achievement*

Very few achievement tests have been standardized in India. For annual promotion and other examinations, essay-type question-papers are prepared by the class teachers, and the answer books are also evaluated by them. Marks in these examinations, therefore, depend upon the question-papers—which differ from school to school—and subjective evaluation—which may differ from teacher to teacher. Such question-papers did not appear to be suitable for comparison of achievement of students studying in different schools. Therefore, marks in the high school examination, which is the first public examination and is conducted by an independent Board of High School and Intermediate Education, were taken as the criterion of academic achievement.

D. RESULTS

Table 1 shows the mean intelligence test scores and the mean high school marks for the students when grouped according to the size of the family.

Figures in column three of Table 1 show that although the mean intelligence

test score for the students belonging to six-member families was slightly lower than that for the students belonging to seven-member families, there was a steady decline in the scores as one moves from the smaller to the larger family groups. The differences in the means for the intelligence test scores were statistically significant at the .01 level.

Figures in column four show that in the case of mean high school marks, also, there was gradual decline in the achievement as the size of the family increased. Damrin's study (3) had also revealed a sharp decline in academic achievement as the family units increased in size, but the author had observed

TABLE 1
MEAN INTELLIGENCE TEST SCORES AND MEAN HIGH SCHOOL MARKS
OF STUDENTS FROM FAMILIES OF DIFFERENT SIZE

| Size of family | Number of students | Mean intelligence test score* | Mean high school marks** |
|----------------------|--------------------|-------------------------------|--------------------------|
| Up to five members | 265 | 39.79 | 253.78 |
| Six members | 177 | 38.88 | 248.73 |
| Seven members | 210 | 38.90 | 240.08 |
| Eight members | 210 | 38.01 | 238.30 |
| Nine or more members | 497 | 37.82 | 233.20 |
| Total | 1359 | 38.54 | 241.08 |

* $F = 3.35$; $p < .01$.

** $F = 6.66$; $p < .01$.

that "this decline in academic achievement is probably a function of intelligence in that it is accompanied by a similar drop in mean IQs."

To see if fall in academic achievement could be accounted for in the present study by differences in intelligence, the data were further analyzed with the help of analysis of covariance, and it was observed that there were significant differences in academic achievement even when measured intelligence was held constant, as the F ratio of 4.10 gave $p < .01$. Fraser (5) had also observed similar findings.

Table 2 shows mean intelligence test scores and mean high school marks for the students when grouped according to their position among siblings.

Figures in Table 2 show that ordinal position among siblings did not have any consistent relationship with intelligence test scores or academic achievement of students. Analysis of variance showed that the differences in the means were not statistically significant. These results are in agreement with the findings of Damrin (3) and Schoonover (9). It was interesting to note that there was close agreement with the general trend observed by Damrin (3): i.e., third-born children ranked first in academic achievement and those sixth-

or later-born were found to be inferior to all the other groups. Since there was positive relationship between smallness of the size of the family and academic achievement, the comparatively poor performance of children sixth- or later-born may have been due to larger size of their families. The results regarding the achievement of third-born children appear to be quite interesting and need further verification.

TABLE 2
MEAN INTELLIGENCE TEST SCORES AND MEAN HIGH SCHOOL MARKS
SECURED BY STUDENTS HOLDING DIFFERENT ORDINAL POSITIONS

| Ordinal position | Number of students | Mean intelligence test score* | Mean high school marks** |
|----------------------|--------------------|-------------------------------|--------------------------|
| First born | 403 | 38.75 | 241.36 |
| Second born | 268 | 38.40 | 238.03 |
| Third born | 249 | 38.70 | 247.60 |
| Fourth born | 161 | 38.81 | 247.09 |
| Fifth born | 116 | 38.03 | 237.91 |
| Sixth and later born | 162 | 38.27 | 231.73 |
| Total | 1359 | 38.54 | 241.08 |

* F = less than one.

** $F = 2.10$; $p < .05$.

E. SUMMARY

In a sample of 1359 randomly selected high school students (age range 14 to 17 years) studying in 22 urban and six rural secondary schools in Lucknow district, it was observed that there was gradual decline in the mean intelligence test scores and mean high school marks as the size of the family increased. The differences in the means for the different groups were statistically significant in both the cases (F ratios being 3.35 and 6.66, respectively). The differences in the means for academic achievement continued to be significant even when intelligence was held constant through analysis of covariance ($F = 4.10$; $p < .01$).

Ordinal position of children among siblings, however, did not show any consistent relationship either with intelligence test scores or academic achievement.

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RACIAL ATTITUDE AS A DETERMINANT OF JUDGMENTS OF PLAUSIBILITY*¹

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A. INTRODUCTION

Waly and Cook (5) have reported high correlations between ratings of the plausibility of statements about segregation and raters' racial attitudes as indicated by a self-report inventory. In discussing this finding they suggested that ratings of plausibility might serve as an indirect indicator of attitude. The purpose of the present study was to explore this suggestion by having criterion groups of Ss with known positions on race relations rate the plausibility of arguments for and against segregation.

B. METHOD

1. *Materials*

The materials were the same as those used by Waly and Cook: 20 statements supporting segregation and 20 supporting integration, with half of the statements in each set being intended as poor or ineffective arguments and half being intended as good or more effective arguments. The 40 items were arranged in random order, and each one was labeled "pro-segregation" or "pro-integration." Under each statement was an 11-point graphic rating scale ranging from *very ineffective* (—5) to *very effective* (+5). An example of a statement intended as a relatively effective argument for integration is as follows:

"Requiring the Negro to attend separate schools carries the implication of inferiority even if equally adequate facilities are provided."

| | | | | | | | | | | |
|---------------------|----|---------------------------|----|-------------------------|---|-----------------------|----|-------------------------|----|-------------------|
| —5 | —4 | —3 | —2 | —1 | 0 | +1 | +2 | +3 | +4 | +5 |
| very ineffective | | moderately ineffective | | slightly ineffective | | slightly effective | | moderately effective | | very effective |

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¹ This study was part of a program of research on the measurement of social attitudes supported by grants from the National Science Foundation and the Air Force Office of Scientific Research. The point of view and goals of the total program are described in Cook and Selltitz (1).

The instructions were the same as those used by Waly and Cook. Briefly, the rationale given was that the arguments were to be used "in the construction of a psychological test," and that in order to find out which would be the best ones to include, it was important to know how a large number of people, "looking at them independently and objectively," viewed the statements. Ss were asked to imagine that they were judging a debate between two teams on the topic of segregation *vs.* integration, and, acting as impartial judges, to rate each argument presented by either side in terms of its effectiveness. They were instructed to rate a statement -5 if they considered it "a very poor argument *for the side that it supports* and [one that] could easily be torn down by the opposition," to rate a statement $+5$ if they considered it "one of the best arguments that could possibly be advanced," and to use one of the numbers from -4 to $+4$ for statements that they felt were somewhere between these extremes.

2. Procedure

This was one of a battery of measures in a program concerned with evaluating the effectiveness of various techniques for measuring attitudes toward social groups and with interrelations among different aspects of attitude as tapped by different measures. The tests in the battery were administered in two sessions of about one hour each, two weeks apart.

At the first session, four instruments were administered in the following order: (a) a "Test of Logical Reasoning," consisting of 10 syllogisms with varied content, given simply to fill in time while waiting for late Ss; (b) a sentence-completion test with sentence stubs worded in the third person, modeled on the Paired Direct and Projective Questions technique developed by Getzels (2, 3)—15 sentence stubs about situations involving Negroes were embedded in a total of 75 stubs, the others having to do with general ideology, relations with parents, various kinds of nonconforming behavior, reactions to stress, etc.; (c) the ratings of plausibility; and (d) a questionnaire asking S to indicate his *family's* opinions on several items having to do with race relations.

In the second session, Ss filled out five questionnaires, four of them essentially undisguised measures of attitude toward Negroes and various aspects of race relations.

3. Scoring

The plausibility ratings were scored by the system developed by Waly and Cook. Ss' ratings of the pro-segregation items were assigned scores from $+5 = 0$ to $-5 = 10$: that is, the more *ineffective* a pro-segregation argument

was considered to be by the *S*, the higher his score. This was reversed for the pro-integration arguments. Thus, a high score for the total set of 40 items resulted from judging integration items as effective and segregation items as ineffective. An individual score could range from zero at the anti-Negro end of the scale to 400 at the equalitarian end. In terms of the basic hypothesis, a high score on the plausibility measure should be associated with an equalitarian attitude, or lack of prejudice.

4. Subjects

Subjects were white American college students. (Some foreign students and some Negroes were included in the groups taking the tests, but their responses were not included in the analysis.) For reasons having to do with the overall design of the study, only those *Ss* who attended both testing sessions (i.e., for whom there were complete or almost-complete data) were included in the analysis. A total of 540 *Ss* were included in the analysis of the plausibility ratings.

All *Ss* were members of organizations, or participants in activities, that could be thought of as constituting criterion groups. That is, the organizations or activities were such that it seemed reasonable to believe that many, if not all, of their members would hold specified attitudes about race relations. The kinds of groups, and the assumptions about the attitudes of their members, are listed below:

a. *Group I.* *Ss* with strongly equalitarian attitudes and active concern with race relations. The authors assumed that white students active in civil rights organizations or having participated in pro-integration activities were likely to meet this description.

b. *Group II.* *Ss* with equalitarian attitudes but not active concern. The authors assumed that white students taking *elective* courses in intergroup relations or minority group problems were likely to fit this criterion, since they voluntarily expose themselves to information about minority groups which is typically presented with an equalitarian view, but are not participating actively in efforts to change race relations. (All *Ss* were asked to list the organizations to which they belonged, and *Ss* in these classes who reported membership in pro-integration groups were transferred to Group I.)

c. *Group III.* *Ss* with anti-Negro attitudes. It is difficult to find student organizations of which most or all members can be assumed to fit this description. However, other studies in the present program [Zavalloni and Cook (6); Selltitz, Edrich, and Cook (4)] had found relatively high proportions of such *Ss* in right-wing political organizations and in selected fraternities

and sororities. In the present study, both these kinds of groups were used as sources of Ss in this category. In selecting the fraternities and sororities, the authors used as informants students in strategic positions in the campus social structure and representing different points of view; only those fraternities or sororities mentioned by a number of informants as being generally believed to have strong, though not necessarily official or explicit, policies against admitting Negroes were used as sources of Ss.

Ss from each of these three types of groups were recruited in each of three geographical regions—Northeast, Rocky Mountain, and Border South—and the data from each region were analyzed separately, thus providing three replications of the study.

Ss in organizations were approached, through the local chapters of their organizations, as "informed students with points of view on public issues." Three dollars were paid for each such S who attended both testing sessions, the payment being made either to the organization's treasury or to the individual Ss, as the organization chose. The tests were administered at the regular meeting time of the group and usually in its regular meeting place. Ss in race relations classes were recruited through announcements in class and were paid three dollars each for participation in the two sessions. The number of Ss at a testing session ranged from five to 60.

C. FINDINGS

1. *Self-Description of Attitude by Members of Criterion Groups*

As noted in the Procedure section, four undisguised measures of racial attitude were among the questionnaires administered to Ss. The intercorrelations of these four measures were high; the median r between the measures for the Ss in the Northeast was .80, for those in the Rocky Mountain region, .72, and for those in the Border South, .87.

Within each of the three regions, the three types of groups differed significantly in the predicted order on all of the undisguised attitude measures: that is, Ss in militant civil rights organizations scored most unprejudiced, those in race relations classes next most unprejudiced, and those in conservative organizations and in selected fraternities and sororities most prejudiced. As an example, the scores on a self-report Opinion Inventory² are shown in Table 1. The upper part of the table shows N s, mean scores, and SD s; the lower part shows relevant data from the analyses of variance, F ratios, and

² This is a revised version of a questionnaire originally developed by Mary Evans Collins.

η 's (eta's) between scores and group membership. Within each region, as predicted, *S*s in Group I have the highest (least prejudiced) scores and those in Group III the lowest (most prejudiced). Moreover, as expected, the standard deviation was highest in Group III, reflecting the greater heteroge-

TABLE 1
SCORES ON SELF-REPORT OPINION INVENTORY^a

| Group | Northeast | Rocky Mountains | Border South |
|---|-----------|-----------------|--------------|
| Group I (Civil rights groups) | | | |
| <i>N</i> | 97 | 95 | 33 |
| Mean | 57.19 | 56.47 | 56.70 |
| <i>SD</i> | 2.91 | 3.21 | 2.30 |
| Group II (Race relations classes) | | | |
| <i>N</i> | 65 | 50 | 6 |
| Mean | 55.32 | 52.08 | 48.67 |
| <i>SD</i> | 7.53 | 8.07 | 9.54 |
| Group III (Conservatives and exclusionists) | | | |
| <i>N</i> | 79 | 54 | 55 |
| Mean | 43.25 | 46.57 | 24.64 |
| <i>SD</i> | 14.21 | 10.63 | 12.89 |
| <i>Analyses of Variance</i> | | | |
| Between groups | | | |
| <i>MS</i> | 4683.47 | 1699.24 | 11004.97 |
| <i>df</i> | 2 | 2 | 2 |
| Within groups | | | |
| <i>MS</i> | 84.79 | 51.80 | 105.44 |
| <i>df</i> | 238 | 196 | 91 |
| <i>F</i> ratio | 55.24* | 32.81* | 104.37* |
| η | .56 | .50 | .83 |

^a Possible range of scores: 0 to 62.

* $p < .001$.

neity of the conservative organizations, fraternities, and sororities with respect to racial attitudes. In terms of scores on this measure, it is apparent that, on the whole, *S*s in Group III are not strongly anti-Negro; their absolute scores suggest that in the Northeast and the Rocky Mountain area the average *S* in Group III is, in fact, moderately unprejudiced, while in the Border South the average *S* in Group III is moderately prejudiced. These findings are consistent with those of earlier studies in this series (4).

2. Plausibility Scores of Members of Criterion Groups

Table 2 shows, for the three criterion groups in each of the three regions, the scores derived from the plausibility ratings. Again, the upper part of the table shows *N*s, means, and *SD*s; the lower part shows data from the analyses

of variance, the F ratios, and η s. Within each region, as predicted, the criterion groups differ significantly ($p < .001$) in their ratings of the plausibility of the arguments, with actively pro-integration Ss scoring highest (i.e., seeing pro-integration arguments as most plausible, pro-segregation arguments as least plausible) and members of conservative political organizations and of exclusionist fraternities and sororities scoring lowest. The η s between plausibility scores and group membership are .63, .33, and .72 in the Northeast, Rocky Mountain, and Border South regions, respectively. Table 3 shows the cumulative percentage of subjects in each criterion group who achieved pro-integration scores of designated levels on ratings of the plausibility of arguments.

3. *Correlation between Self-Report and Plausibility Scores*

Waly and Cook reported correlations of .64 and .88 in a Midwestern university and a Border-South college, respectively, between plausibility scores and scores on an earlier version of the self-report Opinion Inventory. In the present study, too, the plausibility scores correlated substantially with scores on the undisguised attitude measures. Correlations with the revised version of the Opinion Inventory used in the present study were .76 in the Northeast, .54 in the Rocky Mountain area, and .78 in the Border South.

D. DISCUSSION

In both the Northeast and the Border South, the size of the correlations between the plausibility ratings and both the self-report measures and criterion-group membership suggests that plausibility ratings may be a useful indicator of attitude. However, the correlations in the Rocky Mountain region, although highly significant statistically, indicate that only 29 per cent of the variance on the self-report measure, and only 11 per cent of the variance in group membership, can be accounted for by the plausibility measure. Why this should be so is not entirely clear. One possible reason may be that the entire Rocky Mountain sample is more homogeneous than are the other samples, and the criterion groups not as different from each other as in the other two regions. This possibility is supported by the facts that almost all the measures in the battery show lower intercorrelations, and discriminate less well between criterion groups (yield lower η 's), in the Rocky Mountain area than in the other two regions. However, for most of the other measures the correlations are only slightly lower in the Rocky Mountain region than in the Northeast, whereas in the case of the plausibility measure the differences are substantial.

TABLE 2
SCORES BASED ON PLAUSIBILITY RATINGS^a

| Group | Northeast | Rocky Mountains | Border South |
|---|-----------|-----------------|--------------|
| Group I (Civil rights groups) | | | |
| <i>N</i> ^b | 101 | 95 | 33 |
| Mean | 295.95 | 275.57 | 275.18 |
| <i>SD</i> | 36.80 | 31.47 | 29.36 |
| Group II (Race relations classes) | | | |
| <i>N</i> | 68 | 49 | 6 |
| Mean | 281.00 | 268.29 | 259.00 |
| <i>SD</i> | 40.14 | 43.35 | 39.43 |
| Group III (Conservatives and exclusionists) | | | |
| <i>N</i> | 78 | 54 | 56 |
| Mean | 209.85 | 243.43 | 179.02 |
| <i>SD</i> | 61.24 | 45.19 | 52.89 |
| <i>Analyses of Variance</i> | | | |
| Between groups | | | |
| <i>MS</i> | 175699.86 | 18136.75 | 101529.89 |
| <i>df</i> | 2 | 2 | 2 |
| Within groups | | | |
| <i>MS</i> | 2181.30 | 1495.02 | 2057.00 |
| <i>df</i> | 244 | 195 | 92 |
| <i>F</i> ratio | 80.55* | 12.13* | 49.36* |
| η | .63 | .33 | .72 |

^a Possible range of scores: 0 to 400.

^b *N*s differ slightly from those in Table 1 because some *S*s did not complete both questionnaires.

* $p < .001$.

TABLE 3
PERCENTAGE OF SUBJECTS ACHIEVING SCORES OF A DESIGNATED LEVEL OR LOWER ON RATINGS OF THE PLAUSIBILITY OF ARGUMENTS

| Pro-integration score | Criterion groups by region | | | | | | | | |
|-----------------------|----------------------------|----|------|----------------|----|-----|--------------|----|-----|
| | Northeast | | | Rocky Mountain | | | Border South | | |
| | I | II | III* | I | II | III | I | II | III |
| 400 | | | | | | | | | |
| 350 | | | | | | | | | |
| 300 | 95 | 97 | | 99 | 98 | | | | |
| 250 | 53 | 65 | 99 | 81 | 84 | 94 | 88 | 83 | |
| 200 | 13 | 19 | 73 | 21 | 22 | 50 | 21 | 50 | 89 |
| 150 | 1 | 3 | 37 | | 14 | 15 | | | 64 |
| 100 | | 1 | 17 | | 2 | 2 | | | 29 |
| 50 | | | 5 | | | 2 | | | 11 |
| 0 | | | 3 | | | | | | 4 |

* Group I = Civil rights groups, Group II = Race relations classes, and Group III = Conservatives and racial exclusionists.

Despite its relatively poor discriminatory power in this one region, the results do confirm the Waly-Cook conclusion that attitude influences ratings of plausibility, and support the view that ratings of plausibility may be a useful indicator of attitude. For the criterion groups used in this study, such ratings show no advantage over direct self-report measures. However, there are situations where it is desirable to use an indirect rather than a direct measure. This is true, for example, in situations where Ss may be strongly motivated to "make a good impression" or to give socially approved responses. There was no great pressure in this direction in the present study. Ss were not known to the testers; in fact, for the great majority of Ss, the testers were from a different institution, and so there was little reason for Ss to be concerned with making a good impression on them. In addition, the very fact that these Ss were in organizations with more or less clear positions on issues of race relations suggests that these were individuals who were, on the whole, willing to avow their true views, even though these might not be approved by the tester. In situations with increased pressure toward giving socially approved responses, indirect measures, such as ratings of plausibility, may be more useful than direct self-report measures.

Another situation in which an indirect attitude measure may be preferable to a direct one is in experiments designed to bring about change in attitudes. Such experiments often require repeated measurement of the same Ss. This involves the danger that Ss will realize the connection between the experimental manipulation and the attitude measure and may try to cooperate with the experimenter by giving the responses they believe he wants on the post-experimental measure (or, occasionally, to thwart him by not giving the responses they believe he wants). An indirect indicator would, of course, minimize if not eliminate this danger.

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ELEMENTS OF THE SPAN TECHNIQUE FOR MAKING GROUP DECISIONS*¹

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A. INTRODUCTION

In the age of atomic weapons and large organizations, problems concerning power or decision may outweigh all others. By virtue of their prerogatives to shape and enforce policy, elites at the top level of the national power structure exert enormous control over the fate of the nation (4). Within large organizations, managers or administrators, especially those in middle positions of power, daily make decisions that reflect the organizational norms and, in doing so, may impede the creative thrust within themselves and their personnel (8).

With these contexts in view, and with the objective of promoting sound, liberating, and widely shared decisions, this paper will present a method for gathering individual judgments and converting them into group decisions, together with relevant methods to be used for comparative study. The method goes by the acrostic name SPAN (Successive Proportional Additive Numeration), which also serves as a mnemonic for its iterative calculation process. For the present, an analysis of power will suggest its primacy among the social problems of mankind, and the consequent need to invent new social techniques to remedy the disorder.

The problem of power divides into two chief parts: (a) overconcentration and (b) misuse. The two are positively related. One of the most obvious features of contemporary life is the centralization of power within large nations and large social organizations. Powerful individuals or groups decide the fate of vast numbers of people who may have little or no influence upon the decisions made. Boards of corporation directors, industrial arbitrators, or university regents; commissions of federal regulators; panels of judges, jurors, or selection agents; councils of professional or other organizations; and innumerable committees—to say little of presidents, managers, governors, directors, chairmen, and heads—make decisions impacting upon thousands whose

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influence upon the decisions or upon the selection of the deciders may be minimal or null.

Power concentrations, such as these, occur for many reasons including nonparticipation in voting, indirect appointments, long tenure in office, and close similarity between the platforms of opposing candidates. Above all, the problems of a scientific, technological, industrial society are complex. Solutions to these problems require both wisdom and expertise, and the number of individuals meeting the requirements is small. What is more, many crises, such as those concerning the operating room or the battleground, cry for quick decision by a commanding authority.

As for the general public, many people find the daily cycle of routine work and escapist entertainment too consuming to leave much time for considered analysis of the complex issues facing their country or even their work organization. Life, indeed, should be something other than a continual grappling with problems and struggling toward decisions.

Some effects of concentrated power, however, are not salutary. Nonparticipants may become apathetic and lose many of their best chances for self-realization as citizens and persons.

The misuse of power, moreover, balloons in a vacuum of participation. Sometimes the misuse is unconscious, as when a personnel agent accepts or rejects an applicant for a job simply because the applicant is somewhat similar to a liked or disliked relative of the selector. At other times the misuse is more conscious, as when a manager bases promotions upon personal favors rendered him by employees or penalizes workers for any effort to increase their contribution to society and their own self-realization, in contrast with a strict adherence to the one-sided and possibly dysfunctional goals of the organization. Even here some rationalization may render the favoritism or provincialism less conscious.

When not biased by conscious or unconscious forces in one or more holders of power, decisions may still suffer from mediocrity. The individuals making them may lack the precise balance of general knowledge and special information necessary for making optimal decisions in the positions they occupy. Wiser and more expert candidates may occupy positions invested with less power.

As the effects of biased or mediocre decisions impinge upon people, unfavorable effects are registered. A sense of injustice and a disenchantment with "the system" may grip the dominated members.

Overconcentration and misuse of power have persisted, even though in some social areas—notably the political—more people now participate in selecting

leaders than in the past. Clearly, movements toward direct participation by the people in deciding day-to-day issues or toward ending the tenure of officials who depart from public consensus have been stalled for some time, and in large organizations democratic control by employees remains exceptional.

As it happens, wider and more frequent participation in decision making might have both good and bad effects under present rules for arriving at group decisions. On the one hand, general participation would probably strengthen the resolve to respect and uphold the decisions reached. A person who regards himself as participating in the process that results in adoption of rules, even though he be on the losing side, will be more likely to support the rules adopted than one who was voluntarily or involuntarily nonparticipant. This principle has been called the "participation hypothesis" (6, p. 56); strong evidence for it comes from the classical studies on autocracy and democracy as described by White and Lippitt (7).

The process of participation may also promote realization of latent powers in the self of the participant. Through participation, the citizen may acquire added motivation to participate further and to acquire the knowledge and skill requisite for just and effective action. When biases or errors in connection with some issues are multidirectional, moreover, a group process for making decisions may yield a fortunate cancellation of aberrancies.

On the other hand, there are the compelling facts about the complexity of issues and the demand for general knowledge and special information, to which reference has already been made. The public, too, is not free from common prejudice—sometimes against whole ethnic groups—and is not always highly respectful of civil liberties. Thus a downgrading of the quality and fairness of sanctioned rules might ensue if all citizens of the nation or all members of a large organization suddenly became equal in power.

Despite the dismal aspects of present and proposed methods for deciding issues, the view of this paper is that conditions and means are available or imminent for improvement in the quality of decisions made by some existing agencies of power, and also for extension of the decision-making power of other agencies to new sharers with likely improvement in the quality of the resultant decisions. Kenneth Arrow (1, p. 85), for one, has called attention to the important problem of how to pool the judgments of several experts so as to arrive at a best group decision. A model of participation in the planning process by both the personnel and clientele of public agencies has been outlined (2). Someday the democratic sharing of academic policy decisions by the administration, faculty, staff, and student body of colleges and universities may prove

feasible. As preventive medicine and international law develop, increased time should be available for emergency-free processes of decision in matters of health and world affairs.

The means enabling broadscale participation arise conspicuously from at least two sources: spectacular developments in electronics—especially computerization; and a growing understanding of the underlying decisional forces—especially social-psychological, reference-group dynamics. About the computers, it is enough to say that they make possible the numerical processing of more data and to a higher degree than ever has been possible in the past. The social psychologist, because of this technological breakthrough, may proceed to explore phenomenologically or behavioristically the psychological tendencies of human beings in decision-making situations, and may devise new social techniques satisfying these human inclinations, confident that even if the associated computation processes are complex they present no technological obstacle.

As for the nature of these psychological tendencies or inclinations, the concept of "reference group" or "reference person" has grown steadily in importance and has illuminated a part of the mental context in which decisions are made. People, it would seem, often base their decisions on the corresponding decisions of respected others to whom they refer for guidance (3).

It may be wondered why a person does not familiarize himself with a particular issue to the extent that he is able to decide by himself what alternative is best in the light of his values and the probable outcomes of the alternatives. The reason would appear to be the complexity of the issues and the shortage of time for decision. Indeed, even the reference-person process might be somewhat time-consuming, for the individual often has more than one person in mind to whom he might refer a question. He must somehow weigh, weight, and average the answers he receives, at least if they divide among the alternatives posed by the issue.

Some of his reference persons might have doubts about the validity of their own opinions and, because of their diffidence, refer him to still other reference persons whom they would weight or put in rank order to facilitate his ultimate judgment. Along this same vein, an immediate referee may refer the questioner to other people, more because of these others' awareness of who else might have a sound opinion than because of their own point of view respecting the issue at hand. Whatever advice the individual receives he might blend with his own initial opinions regarding the alternative outcomes, meanwhile bearing in mind his own state of knowledge relative to the complexities of the issue.

Obviously this process is arduous to the extent that it is thorough. The

problem it suggests is one of reducing much of the process to some initial numerical weighting of the issue alternatives and reference persons by individuals, and a following computational procedure to articulate and synthesize the various choices so expressed. Both types of weighting are necessary, for if the individual lacks opportunity to express his will directly for an issue alternative, and then is unable to find anyone who can represent him satisfactorily, he may regard the power process as an illegitimate denial of the principle of popular consent; and, in contrast, if he may not cast his lot through chosen others, he loses the prospect of resorting to the judgment of superior persons able to discover integrative solutions to social problems. An articulation and synthesis of data of both types would produce, separately for each individual and also for a group as a whole, a set of ultimate weightings for the issue alternatives. Before presentation of the method itself, a few examples of instances in which the decider might want to use it will indicate its utility.

In some professional or promotional organizations, when an election of officers approaches, the incumbent council prepares a list of names of members it recommends for the positions of council member or organization president. Suppose now that two of these recommended individuals are especially deserving in the view of the incumbents; but one of them, for particular reasons to which core members of the organization are especially sensitive, should be elected this year, and the other the following year. The core members' immediate choice for the presidency may win a place, even the top place, in the preliminary or nominating election; but in the final election—when the less involved, less informed, more hastily voting members swell the size of the vote—he may be edged out by the other strong candidate.

If, however, these added voters had the chance to cast votes indirectly, sending them to members from whom they would be relayed to the choices of those receiving members, the result might be different. Very possibly the receiving members would be the more active and informed individuals of the organization, and these, of course, would include the council incumbents. They would know the specifics of the electoral situation. Thus the less involved but wisely deferent members of the organization might tip the balance in favor of the immediately most appropriate candidate.

Another area in which the method would serve a purpose is the selection panel. Suppose a particular panel must prepare a rank-order list of applicants for university fellowships. Among the applicants and among the panelists are specialists in the social sciences, on the one hand, and, on the other, in the physical sciences. The application forms of the candidates contain their aca-

ademic grades, personal ratings, letters of recommendation, scores on aptitude and achievement tests, and proposals for research projects to be conducted by the candidates if they receive fellowships. Several panelists rate the candidates independently of the other panel members.

In this situation, would it not be expeditious and functional if the social scientists could defer somewhat to the judgment of the physical scientists when the applicant in question had proposed a research project in, say, organic chemistry? A converse case is also easy to imagine.

Unlike the two situations just elaborated, instances also will occur wherein a participant, such as a retired detective now on jury duty, will esteem his own judgments above those of other participants and will wish to contribute directly, in terms of the evidence in the case, to the ultimate group decision.

It may be speculated that in all these decisional problems the open mind as described by Milton Rokeach (5) would correlate with a sensitive and realistic use of the evaluative processes of others. To be capable of understanding the relative potential contribution of others to the adoption of sound decisions differs from a blind acceptance of authority as such.

So far, references to the decision-making methods that might apply in such situations have been general in nature. In the next section, the behavioral and computational steps in the particular method that is focal in this paper will be set forth. The hypothetical example chosen to explain the technique in operational terms involves only three individuals. Its fictional data and numerical processing, nevertheless, demonstrate many of the phenomena that might occur if a much larger group were to use the method for either applied or research purposes.

B. THE SPAN TECHNIQUE

The SPAN technique—or, more simply, SPAN—permits each participant to divide his votes, or points, among (a) the ultimate alternatives facing the group and (b) the other group participants, from whom, via numerically calculated results mirroring his previous allocations, any received points may again be divided among (a) the ultimate alternatives and (b) the group participants, and so on, iteratively. The rationale of the process is the supposition that if a participant actually could redistribute the points he received from others whose particular voting performances remain secret, the most likely proportions and directions his new allocations would take are those that characterized his first series of allocations.

Despite its iterative numerical process, the method conforms with familiar political ideals. Each participant, or Member, only by free consent allocates

points to another. Each Member also enjoys equality with every other in basic voting power. (From this point on, some special concepts will be emphasized in the text by capitalization if they are important mainly for procedure, or, on first appearance, by italics if they are important chiefly for calculations.)

On the other hand, the repeated calculations, in effect, bring about inter-Member relays, and these might well converge on Members of merit or excellence. That is to say, relays from average choosers to superior choosers, to very superior choosers, etc., might upgrade the quality of the ultimate alternative selected.

TABLE 1
THREE ALLOCATIONS OF PERCENTAGES BY EACH MEMBER

| Target | A | Sender B | C |
|-----------------------|-----|-------------|-----|
| Members (A, B, and C) | 30 | 60 | 80 |
| Options (1 and 2) | 70 | 40 | 20 |
| Member A | 0 | 95 | 0 |
| Member B | 100 | 0 | 100 |
| Member C | 0 | 5 | 0 |
| Option 1 | 76 | 25 | 0 |
| Option 2 | 24 | 75 | 100 |

1. *Instructions to Members*

Some time for familiarization with questionnaire or allocation forms is useful to get the point of the method across to participants. The Member learns by description and example that he will perform allocations in three steps:

1. He will allocate 100 points in two complementary parts, the first sent to Members and the second to Options (the ultimate choices or courses of action that the group contemplates). To make easy or possible the calculation for shifting points from Members to Options, the Members may also be required in Step 1 to allocate at least one point to each category of the Members-Options dichotomy—the two numbers, of course, summing to 100. In this operation the numbers and the percentages of points allocated are necessarily equal.

Table 1 with fictional data tells us that Member B in a three-person group sent or allocated 60 points to Members and 40 points to Options. (In general, B provides a useful example because he allocated points to A and C and received points from both.)

2. He will allocate percentages among Members to show in what proportion

the points he previously allocated to Members as a group are to be distributed among particular Members other than himself. A glance at Table 1 reveals that Member B split the 60 points he had allocated for Members into 95 per cent for A, 0 per cent for himself (of necessity), and 5 per cent for C.

3. He will allocate percentages among Options to show in what proportion the points he previously allocated to Options as a whole are to be distributed among particular Options. To simplify calculation, the Members may be required in Steps 2 and 3 to make their percentage allocations among Members and Options in zeros or integers rather than in numbers with decimal parts. Member B, as Table 1 shows, allocated 25 per cent to Option 1 and 75 per cent to Option 2 when dividing the 40 points he had given to Options as a whole.

In different practical or research situations, the Options might be candidates for acceptance by an assessment panel, candidates for election to a legislature, suggestions of new uses for familiar objects, alternative answers to logico-mathematical or human-relations problems, "yes" or "no" on legislative bills or initiative measures, policy proposals for a group, personalized recommendations to an individual, etc. They might be responses to closed questions with fixed alternatives, or responses to open questions, the free answers to which would require later coding or content analysis. (If the member produces only one answer, he must, in line with instructions, allocate it 100 points.) In all these situations, the task is one of judgment or evaluation.

An important part of the instructions is to emphasize the dual nature of the Representative role, for which candidacy is universal in the group. When deciding to whom he should allocate points, the Allocator should consider his possible Receivers with respect to their potential allocations of points among both Options and Members. All points a Representative (Receiver) acquires will be redistributed, by the process of calculation, in proportion to his allocations among his Targets—that is, the Member and Option categories—and the Allocator (Sender) must bear this dual role in mind.

The composition of Table 1 is designed to reflect conditions in a three-member group that might simulate some of those to be found in a large organization or community, in which the same decision-making method would be applied with all members participating. A and C know nothing of each other and hence exchange zero allocations. B, on the other hand, knows both A and C but, respecting A as a chooser of Options and Members far more than he does C, gives A the bulk (95 per cent) and C only a token part (5 per cent) of his allocation to Members (60 points).

If we assume that Option 1 is either logically or factually correct, as might

be the case in some experimentation on problem solving, then these allocations of B are sound because A favored Option 1 (76 per cent), whereas C did not (0 per cent). Nevertheless, not all the allocations are fully "rational," assuming each member wishes the technique to pick out the correct answer. For example, by giving 80 of his *original* 100 points to Members, C indicates diffidence about his performance in relation to the problem. In light of this lack of self-confidence, it would seem that his allocating 100 per cent of his 20 Option points to a single Option was ill-advised. A hedging or fence-straddling allocation nearer to a 50-50 split between the two Options would have been more rational. The iterative nature of the redistributions following these original allocations will become clear in the following description of the calculations.

TABLE 2
ONE ARRAY OF CALCULATED PROPORTIONS FOR EACH MEMBER

| Target | A | Sender B | C |
|----------|------|-------------|-----|
| Member A | 0 | .57 | 0 |
| Member B | .30 | 0 | .80 |
| Member C | 0 | .03 | 0 |
| Option 1 | .532 | .10 | 0 |
| Option 2 | .168 | .30 | .20 |

2. Calculations to Shift Points from Members to Options

The group members play no part in the further redistributions of points. These reallocations are solely a matter of calculation.

Before beginning the essential calculations, it is useful to convert the three allocations of percentages by each Member to a single set of proportions. The three percentage series aid the Allocator in making comparative judgments, but the single set of proportions facilitate calculation.

Table 2 shows the results of the conversions. The proportions of .10 for Option 1 and .30 for Option 2, as examples from the table, result from two steps. First, on the basis of the data in Table 1, Member B's allocation of 40 points to Options as a whole were split into 25 per cent (10 points) for Option 1 and 75 per cent (30 points) for Option 2. Then these two amounts were converted from parts of 100 to parts of 1—explicitly, from 10 and 30 to .10 and .30.

These proportions are, so to speak, *projection proportions*. Throughout the cycles of calculation, they serve to project the points forward from the *source* Members to the various Member and Option *destinations*. (During the calcu-

lations, as distinguished from the Members' participant allocations, "source" replaces "Sender" and "destination" replaces "Target.")

Table 3 reveals the straightforward, repetitive calculations with the 100 points of Member B during cycles 1, 2, and 3. The table demonstrates the early steps of the *individual* method of calculation, in which the 100 original points of only one Member are traced through Member *stations* and to Option *stations* until all but a minuscule part of a single point have *terminated* at the Option stations, the *transitional* remainder being negligible. Once points arrive at the Option stations, they remain there. The individual method of calculation permits each member to learn the ultimate location of his 100 original points, and hence provides each Member with a frame of reference derived from a personally selected reference group.

TABLE 3
MEMBER B'S POINTS AT MEMBER AND OPTION STATIONS DURING CYCLES 1, 2, AND 3

| Destination | Source member and initial parcel on cycle 1 | | | Source member and initial parcel on cycle 2 | | | Source member and initial parcel on cycle 3 | | |
|-------------|---|-----|---|---|---|-----|---|--------|---|
| | A | B | C | A | B | C | A | B | C |
| | 0 | 100 | 0 | 57 | 0 | 3 | 0 | 19.5 | 0 |
| Member A | 0 | 57 | 0 | 0 | 0 | 0 | 0 | 11.115 | 0 |
| Member B | 0 | 0 | 0 | 17.1 | 0 | 2.4 | 0 | 0 | 0 |
| Member C | 0 | 3 | 0 | 0 | 0 | 0 | 0 | .585 | 0 |
| Option 1 | 0 | 10 | 0 | 30.324 | 0 | 0 | 0 | 1.95 | 0 |
| Option 2 | 0 | 30 | 0 | 9.576 | 0 | .6 | 0 | 5.85 | 0 |

As Table 3 shows, in the individual method applied to Member B, B begins cycle 1 with a *cyclic initial parcel* (abbreviated "initial parcel") of 100 points, whereas A and C are each arbitrarily assigned 0 points. The initial parcels of any given cycle are simply the points (brief for "whole points or decimal parts of a point") at the Member stations at the start of the cycle. The initial parcels are next divided into *cyclic intermediate subparcels* (abbreviated "intermediate subparcels") in accordance with the projection proportions of Table 2. Of course, an initial parcel of 0 necessarily results in uniform subparcels of 0.

It will be convenient to represent the projection proportions in a standard way, with the three proportions for A, B, and C, in that order, preceding the two proportions for Options 1 and 2, respectively. Thus, proportioning the 100 points of B in accordance with the projection proportions of .57, 0, .03; .10, .30 from Table 2 results in the intermediate subparcels 57, 0, 3; 10, 30, as seen in the second column of the body of Table 3.

When the proportioning (to analyze the initial parcels into subparcels, to

be arrayed in a column) has finished, the adding along rows (to synthesize the subparcels into the *cyclic final parcels* begins). The *cyclic final parcels* (abbreviated "final parcels") of any cycle are simply those groups of points that *transfer* from various Member stations during the cycle and come together to form bundles, so to speak, at the various Member and Option stations by the end of the cycle. The final parcels at Member stations by the end of a cycle constitute the initial parcels of the next cycle.

The final parcel of A at the end of cycle 1 results from adding 0, 57, and 0 found in the row headed "Member A," and the sum appears as the initial parcel of A at the head of the first column for cycle 2. The other parcels are found by similar addition of the subparcels belonging to the other two members.

During the first step of cycle 2, multiplication of the 57-point initial parcel of A by the projection proportions for A—specifically, 0, .30, 0; .532, .168—results in the intermediate subparcels 0, 17.1, 0; 30.324, 9.576. B's initial parcel of 0 next leads to a column of 0's. Then proportionment of Member C's initial parcel of 3 points in accordance with 0, .80, 0; 0, .20 results in subparcels of 0, 2.4, 0; 0, .6.

Adding along the rows to combine the intermediate subparcels is the familiar second step. For example, B's received points, 17.1, 0, and 2.4, sum to 19.5, which appears as his initial parcel for cycle 3. The three sums, 0, 19.5, and 0, appear as the column headings for cycle 3. Some of the entries for this third cycle in Table 3 (and many other numbers in this paper) were rounded off to three decimal places from longer figures.

This successive, proportional, additive numeration continued for 11 cycles. The decisive part of the results appears in Table 4. There, in the first two columns of the body of the table, are the Option final points (parcels) resulting from the additions of numbers in the last two rows of Table 3. The entry, 10.176, for cycle 2 and Option 2, as an example, is the sum of 9.576, 0, and .6. The next two columns record the results of adding the Option final points of successive cycles to obtain *cumulative cyclic final parcels* (abbreviated "cumulative final parcels").

By the end of cycle 8, as Table 4 makes evident, Option 1 had cumulated 50.019 points, a majority of B's original quota of 100. This happened despite B's personal preference for Option 2, exposed previously by his allocating 75 per cent of his points for Options on cycle 1 to Option 2.

By the end of cycle 10 it was clear that, to one-decimal accuracy, B would have 50.1 points in the Option 1 category. SPAN as a device of calculation

metaphorically provides a span over which one group of points that has been split off among Member categories by personal allocations may *cross* toward reunion with points directly allocated to the Option categories.

The complete calculations included, of course, separate calculations with

TABLE 4
FINAL PARCELS AND CUMULATIVE FINAL PARCELS OF MEMBER B'S POINTS
AT OPTION STATIONS DURING THE FIRST 11 CYCLES

| Cycle | Final parcel | | Cumulative final parcel | |
|-------|--------------|----------|-------------------------|----------|
| | Option 1 | Option 2 | Option 1 | Option 2 |
| 1 | 10 | 30 | 10 | 30 |
| 2 | 30.324 | 10.176 | 40.324 | 40.176 |
| 3 | 1.95 | 5.85 | 42.274 | 46.026 |
| 4 | 5.913 | 1.984 | 48.187 | 48.010 |
| 5 | .380 | 1.141 | 48.567 | 48.151 |
| 6 | 1.153 | .387 | 49.721 | 49.538 |
| 7 | .074 | .222 | 49.795 | 49.760 |
| 8 | .225 | .075 | 50.019 | 49.836 |
| 9 | .014 | .043 | 50.034 | 49.879 |
| 10 | .044 | .015 | 50.078 | 49.894 |
| 11 | .003 | .008 | 50.081 | 49.902 |

TABLE 5
GROUP FINAL PARCELS AND GROUP CUMULATIVE FINAL PARCELS
AT OPTION STATIONS DURING THE FIRST 11 CYCLES

| Cycle | Final parcel | | Cumulative final parcel | |
|-------|--------------|----------|-------------------------|----------|
| | Option 1 | Option 2 | Option 1 | Option 2 |
| 1 | 63.2 | 66.8 | 63.2 | 66.8 |
| 2 | 41.324 | 43.176 | 104.524 | 109.976 |
| 3 | 35.306 | 17.044 | 139.830 | 127.020 |
| 4 | 8.058 | 8.419 | 147.889 | 135.439 |
| 5 | 6.885 | 3.324 | 154.773 | 138.762 |
| 6 | 1.571 | 1.642 | 156.345 | 140.404 |
| 7 | 1.343 | .648 | 157.687 | 141.052 |
| 8 | .306 | .320 | 157.994 | 141.372 |
| 9 | .262 | .126 | 158.255 | 141.499 |
| 10 | .060 | .062 | 158.315 | 141.561 |
| 11 | .051 | .025 | 158.366 | 141.586 |

A's original 100 points, and then with C's original 100 points. Results are summarized in Tables 3 and 4, which detail the outcomes for B. To calculate, for instance, the transfers of A's points analogously with Table 3, the initial parcels of A, B, and C on cycle 1 would be, respectively, 100, 0, and 0.

The three sets of calculations merge in Table 5. Each entry in the first two columns in the body of this table results from adding entries located in the same relative position in three tables like Table 4, one for each Member. Thus, the upper-left entry, 63.2, resulted from adding 53.2 (from a corre-

sponding table for A), 10 (from Table 4), and 0 (from a corresponding table for C). The last two columns in Table 5 show that at the end of cycle 2, Option 1 had cumulated 104.524 points as compared with 109.976 for Option 2.

Cycle 3 records a big change. Whereas each of the first two cycles showed leads for Option 2, the third cycle brings about a reversal. The cumulative final points now show that Option 1 has forged into the lead. This phenomenon constitutes a relay effect: C made a big allocation to B, and the calculations have relayed a large part of it to A (from whom much of it went to Option 1).

Thereafter the cycles progress with very few points going immediately from C. On alternate cycles, Option 1 receives slightly fewer points than does Option 2, then considerably more. By the end of cycle 5, Option 1 has cumulated more than one-half of the 300 original points, once held by the Members. At this juncture the majority of Option 1 consists of 154.773 points, or 51.6 per cent of the total.

At the end of cycle 11, it was definitive that, to one-decimal accuracy, Option 1 had received 158.4 cumulative final points *versus* 141.6 for Option 2. The two numbers sum to 300.0. The cumulative final points among the Option stations at the end of the concluding cycle of calculation, and the points—in the present case less than .1—which at this same phase are still among the Member categories, constitute the *terminal* points. The number of terminal points equals the number of original points, specifically, $100\ m$, where m is the number of Members. It is clear that the calculational process would benefit from (a) development of shortcut methods of calculation, (b) programing for general-purpose computers, or (c) construction of special equipment enabling all Members simultaneously to register their allocations as inputs and then immediately receive the computed results as outputs to guide further processes of discussion or decision making.

C. POTENTIAL RESEARCH COMPARISONS

1. *Direct and Representative Methods*

It seems appropriate to pit SPAN against other points or fractional systems as flexible comparison methods within the general orientation of liberal-democratic decision making. A purely direct method would begin with each Member dividing 100 points among the Options. Presumably A, B, and C would have distributed their 100 points for Options under the direct method in the same ratios as they did their percentages under SPAN. (In actual experimentation, good methodology would require that the researcher ask his

subjects to perform separate series of allocations for all comparative methods.) The total number of points for Option 1, by inference, would have been the sum of numbers in the next-to-last row of Table 1—specifically, 101—and the total for Option 2, similarly, would be 199. Clearly, such a direct method would have selected the supposed wrong answer.

A purely representative method would begin with each person dividing 100 points among other Members and dividing 100 percentage points among Options, and via the calculations, contributing received points to the several Options in proportion to these percentages, but contributing only the points he received from others. In the light of Table 1, A, B, and C presumably would have received points equal to the sum of the numbers in the rows beginning with their names or designations; these sums are 95, 200, and 5. Then of A's 95 received points, 76 per cent, or 72.2, would have gone for Option 1, etc. To omit details, Option 1 would have received a total of 122.2 of the original 300 points, and Option 2 would have received 177.8. Again, the supposed wrong answer would win.

Now SPAN itself affords both *direct* and *representative* measures. The first cycle of calculations transfers only direct points to the Options, whereas all subsequent cycles transfer only indirect, or representative, points (including points coming from Representatives of other Representatives, etc.). The comparative figures for these two sources are these. On cycle 1, 48.6 per cent of the final points going to Options went to Option 1; on cycles 2 through 11, on the other hand, 56.0 per cent of the comparable points went to Option 1. Thus an upgrading occurred. (Percentages for Option 2 may be found by subtraction from 100 per cent.)

Another example of upgrading may occur within the representative cycles. Whereas on cycle 2 (the first representative cycle) Option 1 received 48.9 per cent of the points crossing to Options, on later cycles 3 to 11, inclusive, it received 63.0 per cent. Especially where a large group of m Members participate, the ascending relays from average to superior, to very superior choosers, etc., should improve markedly the quality of the outcomes on the cycles near the m 'th cycle as compared with those near the first.

A third measure, the cumulative final points, combines both direct and representative features. If taken at the end of the *concluding* cycle when all points but a minuscule part of a single point have transferred to Options, it conforms with familiar political ideals. No Member allocates points to a Representative except by consent. Each Member enjoys equality with every other Member in basic voting power.

2. Majorities of Voters and of Points

True, the balance of power in SPAN depends upon a majority of points rather than of persons, but several remarks are appropriate in this connection. First, a one-person-one-vote majority might decide that its group should arrive at a decision on a specific issue via a SPAN majority of points. Second, a one-person-one-vote decision might come after a study of the SPAN group totals for Options. Third, such a decision might come after each Member had learned of the eventual distribution of his 100 original points among the Options (or after every Member had learned of such distributions for each individual Member). Fourth, of a Member's 100 original points, the largest part going ultimately to any Option could convert by automatic rule to a single vote for that Option (a condition under which secrecy could be maintained).

Had this automatic rule been applied to our fictional triad of Members, Option 1 would have received a two-to-one majority; for, at the end of 11 cycles and to one-decimal accuracy, it was definitive that, of A, B, and C's original points, 68.2, 50.1, and 40.1, respectively, had cumulated for Option 1. This 66.7 per cent majority of votes compares with 52.8 per cent (158.366 points) of the original 300 points cumulated by SPAN for Option 1, without such conversion.

It is also possible to compare single-vote direct, representative, and SPAN methods, using the data of Table 1 and assuming that a Member allowed to choose only a single alternative in a set—i.e., in the Members-Options set or dichotomy, the Members trichotomy, or the Options dichotomy—would be consistent and choose the alternative to which he had given the largest amount when allocating percentages. By the direct method, in which the Members have a choice only among Options, one vote would have gone from A to Option 1 (because A had favored Option 1 over Option 2 by 76 per cent to 24 per cent), one vote would have gone from B to Option 2, and one from C to Option 2. By the representative method, in which Members cast counted votes via other members only, one vote would have gone from A to B to Option 2, one vote would have gone from B to A to Option 1, and one from C to B to Option 2. By the SPAN method, in which Members make choices within all three sets of alternatives, one vote would have gone from A directly to Option 1 (because A had favored Options over Members by 70 per cent to 30 per cent, and Option 1 over Option 2 by 76 per cent to 24 per cent); one vote would have gone from B to A to Option 1; and one from C to B to A to Option 1.

To summarize, among the single-vote modifications, the direct and representative methods would each have given only one vote to Option 1, whereas the SPAN method would have given all three votes to Option 1. No matter what method or sequence of methods were applied, it may be added, the final decision could be sanctioned or simply advisory.

D. SUMMARY

Social-psychological study of invented numerical methods for converting individual decisions into collective decisions becomes more practicable as electronic computers acquire increased capacity. One such method or technique capitalizes on the individual's ability to appraise both issues and reference persons who can serve as his voting representatives. The method derives its full name and acrostic abbreviation from its iterative procedure of computation: Successive Proportional Additive Numeration (SPAN). Various comparative methods provide the research means of evaluating the effectiveness of SPAN for integrating good or correct decisions in situations presented to subjects in groups.

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CROSS-CULTURAL NOTES

Under this heading appear summaries of studies which, in 500 words or less, provide comparable data from two or more societies through the use of a standard measuring instrument; additional details concerning the results can be obtained by communicating directly with the investigator.

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PERSONALITY STRUCTURE OF CHINESE COLLEGE STUDENTS IN TAIWAN AND HONG KONG*

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It is generally recognized that the social environment in which a person lives usually imposes on him certain awarenesses that may influence or alter his values, beliefs, attitudes toward self and others, or his style of life. The present paper reports the use of the Sixteen Personality Factor Questionnaire (16 P.F.) in a study of a sample of Chinese college students in two different educational and social environments—specifically, in a study of personality differences between Taiwan and Hong Kong college students.

Ss were 556 (252 male and 304 female) college students in Taiwan and Hong Kong. The Taiwan Ss included 159 males and 139 females enrolled at Taiwan Provincial Normal University, while the Hong Kong Ss were 93 males and 165 females attending Chu-hai College, Kowloon. The 16 P.F., Form A, was translated into Chinese for the purpose of testing Chinese-speaking groups. An attempt was made to preserve as closely as possible the essential meaning of the English version (by Cattell and Eber) without resorting to a literal translation of the test items. The translated items were again rechecked and modified by the consensus of several Chinese social scientists. The Chinese 16 P.F., Form A, was then administered under group testing conditions.

Initially, means and standard deviations were computed on each scale for

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each of the four subgroups (Taiwan males, Taiwan females, Hong Kong males, and Hong Kong females). Since the sex variable is not of major concern to the present problem, t tests of significance were computed only between the personality scores of Taiwan and Hong Kong males and between Taiwan and Hong Kong females. Within the female group, eight of the personality differences exceeded the .05 level of significance, while five of the male personality comparisons exceeded the .05 level.

In terms of primary trait description, and ordered from most salient ($p < .001$) to least salient ($p < .05$), Taiwan females are more abstract-thinking ($B+$), self-assured ($O-$), self-sufficient (Q_2+), experimenting (Q_1+), assertive ($E+$), relaxed (Q_4-), reserved ($A-$), and tough-minded ($I-$) than Hong Kong females. Conversely, Hong Kong females are more concrete-thinking ($B-$), apprehensive ($O+$), group-dependent (Q_2-), conservative (Q_1-), submissive ($E-$), tense (Q_4+), outgoing ($A+$), and tender-minded ($I+$) than their Taiwan counterparts.

Regarding the male comparisons, Taiwan males are more trusting ($L-$), self-sufficient (Q_2+), assertive ($E+$), and restrained ($H-$) than Hong Kong males. Conversely, Hong Kong males are more suspicious ($L+$), group-dependent (Q_2-), submissive ($E-$), and venturesome ($H+$) than their Taiwan counterparts.

These preliminary findings lead to two conclusions: (a) as subcultural groups, Chinese students in Taiwan and Hong Kong are noticeably different on several personality dimensions; and (b) the differences within the female samples seem to be more numerous than those within the male samples.

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AMAE AND ACCULTURATION AMONG JAPANESE-
AMERICAN COLLEGE STUDENTS IN HAWAII*^{1 2}

Department of Psychology, Western Washington State College

GERALD M. MEREDITH

A. PROBLEM

A priest of the Jodo Shinshu sect confided that it takes 20 generations to mold a Japanese—to inculcate the essence of order, obedience, and conformity that constitutes the core personality. At the center of this core, according to the psychiatrist Doi (21), is *amae* (a basic dependency need). The converse problem, that of transforming the Japanese, is less an issue of philosophical speculation than a matter of empirical acculturation research. As viewed here, the process of acculturation is directed toward the ultimate assimilation of the ethnic individual into American society (10).

Although such terms as *issei*, *nisei*, and *sansei* are used in the language of discourse in a discrete manner by Japanese Americans to specify generation level, it is generally recognized that there is a considerable overlap between the groups in their degree of commitment to shared patterns and values. The research interest in second-generation *nisei* Japanese Americans (1, 9, 18, 19, 20, 23, 24, 33, 42, 45, 46) has shifted recently to their third-generation offspring, the *sansei*, with explorations of such variegated topics as body imagery (3), need and trait structure (2, 5, 7, 22, 34), social attitudes (4, 6), and correlates of classroom participation (26). In Hawaii, where the Japanese constitute the second largest segment (approximately one-third by recent census) in a population that has no clear majority group, the *sansei* represent the predominant generation group at the college level. The purpose of the present study was to determine the differences between *sansei* Japanese-American college students and a comparable group of Caucasian-American students on a set of basic personality dimensions.

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¹ This paper was presented on the symposium, "Personality and Acculturation in Japanese Americans," at the annual meetings of the Western Psychological Association, Long Beach, California, 1966.

² This research was supported in part through the Cooperative Research Program of Education, United States Department of Health, Education, and Welfare.

B. METHOD

Ss of the investigation were 154 (82 male, 72 female) third-generation Japanese Americans (and hereafter referred to simply as *sansei*) enrolled in introductory psychology and speech courses at the University of Hawaii. A comparison group consisted of 140 (68 male, 72 female) Caucasian-American college students enrolled at the University of Hawaii ($N = 60$; 30 male, 30 female) and the University of Illinois ($N = 80$; 38 male, 42 female). The inclusion of Caucasian subjects from the Midwest was intended to broaden the comparative base of the study. The average age of the entire sample ($N = 294$) was 19.5 years, with slight deviation of the subgroup means from this value. A basic set of source traits in the "personality sphere" (13) was measured with the 16 Personality Factor (P. F.) Questionnaire, Form A (15).

C. RESULTS

1. *First-Order Analysis*

The analysis of the results was carried out both at a first-order or primary factor level, and at a higher-order or secondary level. Initially, means and standard deviations were computed on each scale for each of the major subgroups (i.e., *sansei* males and females, and Caucasian males and females). Since the ethnicity variable is of principal interest, *t*-tests of significance were computed between the personality scores of *sansei* and Caucasian males, and between *sansei* and Caucasian females.

With respect to the male ethnic comparisons, 11 of the 16 personality differences were statistically significant, while for the female comparisons, eight of the differences were significant.³ Six of the factor dimensions of the 16 P. F. consistently differentiated *sansei* from Caucasians in the same direction within each sex group.

When the overall findings are ordered from most salient ($p < .001$) to least salient ($p < .05$), *sansei* males may be described as more submissive (E—), regulated by external realities (M—), diffident (H—), reserved (A—), serious (F—), apprehensive (O+), tense (Q_4+), affected by feelings (C—), conscientious (G+), socially-precise (Q_3+), and more un-

³ The tables containing this data have been deposited as Document number 8970 with the ADI Auxiliary Publications Project, Photoduplication Service, Library of Congress, Washington 25, D. C. A copy may be secured by citing the Document number and by remitting \$1.25 for photoprints, or \$1.25 for 35-mm microfilm. Advance payment is required. Make checks or money orders payable to Chief, Photoduplication Service, Library of Congress.

pretentious (N—) than Caucasian-American males. *Sansei* females, on the other hand, are more apprehensive (O+), suspicious (L+), submissive (E—), reserved (A—), tense (Q₄+), diffident (H—), group-dependent (Q₂—), and more affected by feelings (C—) than are Caucasian-American females. Since the dimensions of description are bipolar, Caucasians may be characterized in converse terms.

2. Second-Order Analysis

The factors of the 16 P. F. are oblique (or correlated) and, when factored, reduce to several broad second-order structures, the most stable ones being *introversion-extraversion* (also termed *invia-exvia* to distinguish it from the Eysenck usage), *anxiety, tough poise vs. responsive emotionality*, and *independence vs. dependence* (25). As viewed here, a higher-order factor in the questionnaire domain is a source trait that contributes to the variance of several primary source traits and is broader in its influences. Standard weights for estimating each subject's endowment on these second-order factors were applied to transform the subject's *sten* (standard 10 point) scores on the primaries to *sten* scores on the secondaries. In addition, empirical research with the 16 P. F. has led to the development of specification (regression) equations to predict "real life" criteria, such as *neuroticism* (16), *leadership* (17), and *creativity* (14). Technically, these are termed "derived secondaries," since they stem from empirical use of the instrument.⁴

A comparison of the ethnic groups on the higher-order factors (both second-order and derived) is presented in Table 1. Clearly, the *sansei* may succinctly be described as more inhibited, higher in intrapsychic tension, closer in proximity to clinically-diagnosed neurotics,⁵ and lower in leadership potential in face-to-face situations than Caucasians. In the case of the *sansei* male, a more passive and dependent personality must be added to this picture.

Since the second-order *extraversion* and *anxiety* factors are the most pervasive of the secondaries (25), and the focus of several ongoing cross-cultural research projects (43, 44), Figure 1 depicts the means of the four subgroups located in the space defined by these two factors. The Caucasians clearly fall in close proximity in the E+A— quadrant, while the *sansei* fall in the E—A+ quadrant (centered on the population *sten* mean of 5.5).

⁴ Specification equations for computing second-order and derived personality scores were furnished by the Institute for Personality and Ability Testing (I.P.A.T.), Champaign, Illinois.

⁵ The reader is referred to the prewar work of Smith (40, 41) on the causes of inferiority feelings among Island youth.

TABLE 1
SECOND-ORDER AND DERIVATIVE PERSONALITY COMPARISONS

| | Japanese American | | Caucasian American | | |
|-----------------------------|-------------------|------|--------------------|------|----------|
| Sex and higher-order factor | Mean | SD | Mean | SD | <i>t</i> |
| <i>Males</i> | | | | | |
| Extraversion | 4.0 | 1.83 | 6.4 | 2.47 | 6.72*** |
| Anxiety | 6.4 | 1.76 | 5.4 | 1.82 | 3.32** |
| Tough poise | 5.6 | 1.84 | 5.8 | 1.73 | .63 |
| Independence | 5.4 | 1.48 | 6.8 | 1.96 | 4.89*** |
| Neuroticism | 6.6 | 2.12 | 4.7 | 1.98 | 5.72*** |
| Leadership | 4.6 | 1.76 | 5.6 | 1.90 | 3.15** |
| Creativity | 6.6 | 1.86 | 6.3 | 2.09 | .91 |
| <i>Females</i> | | | | | |
| Extraversion | 5.0 | 1.77 | 5.9 | 1.94 | 3.05** |
| Anxiety | 6.7 | 1.86 | 5.3 | 1.93 | 4.30*** |
| Tough poise | 5.7 | 1.55 | 6.0 | 1.93 | 1.15 |
| Independence | 6.3 | 1.56 | 6.7 | 1.88 | 1.51 |
| Neuroticism | 6.1 | 2.02 | 4.7 | 2.08 | 4.26*** |
| Leadership | 4.6 | 1.73 | 5.7 | 1.81 | 3.78*** |
| Creativity | 6.6 | 1.76 | 6.5 | 2.05 | .30 |

** Significant at the .01 level.

*** Significant at the .001 level.

D. DISCUSSION

The findings of the present study suggest a mode of adjustment for the *sansei* that represents a "coming to terms" with the social environment. Although the E—A+ pattern is parallel for both sexes, *sansei* males tend to accentuate the *introverted* style (analogous to Horney's "moving away from others"), while *sansei* females exhibit a heightened *anxiety* (ergic tension) pattern.

There is an interesting parallel between these acculturation findings and L. Takeo Doi's theory of *amae* (21, 38). The Japanese concept of *amae* can be thought of in Western terms (if there is an accurate transcultural equivalency) as a basic need to be cherished and loved. The thwarting of this core dependency need, according to Doi (21, p. 2), leads to serious behavioral consequences, such as *kodawaru* ("to be inwardly disturbed over one's personal relationships") and *sumanai* ("to feel guilty or obligated"). It is hypothesized that the E—A+ pattern of the *sansei* represents a non-pathological manifestation of these typically Japanese reaction patterns. An application of this model suggests that *sansei* are more disturbed than Caucasians over personal relationships (*kodawaru*) and there is an early resolution of frustrated *amae* by a psychological "turning inward." It is provocative that Cattell (13) describes *introversion* (from a purely Western

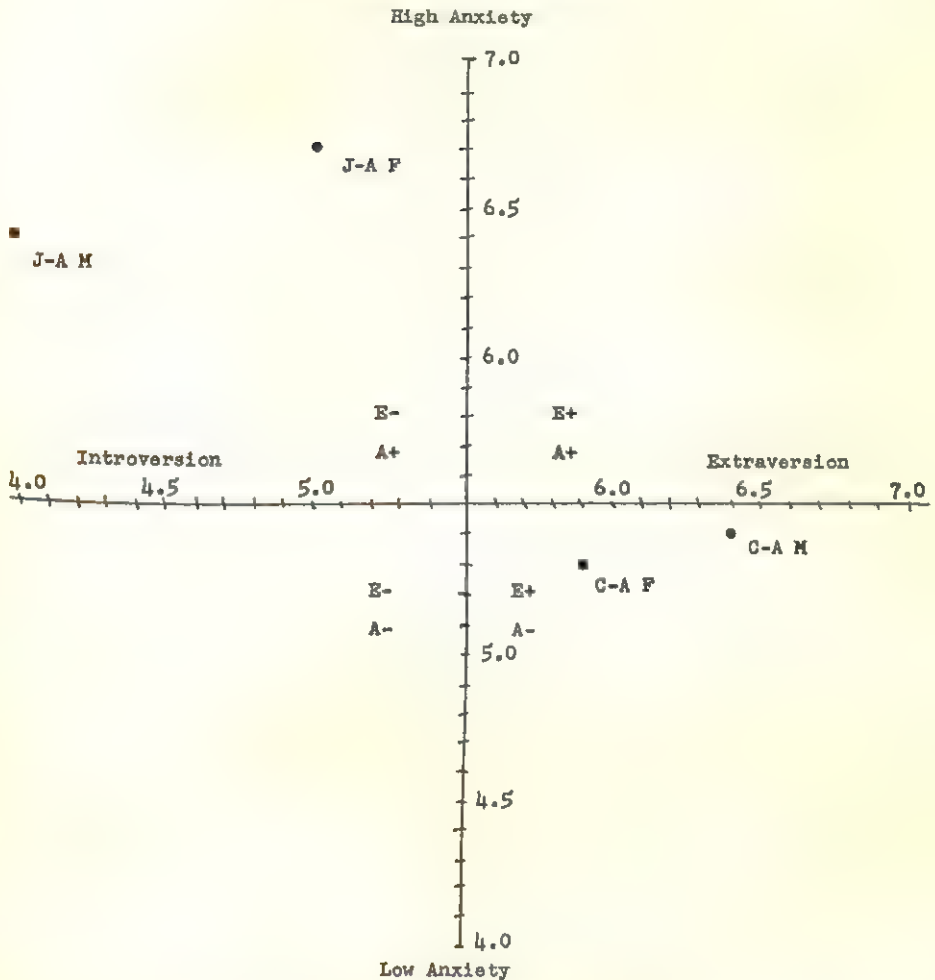


FIGURE 1

PSYCHOLOGICAL DISTANCE BETWEEN JAPANESE-AMERICAN AND CAUCASIAN-AMERICAN COLLEGE STUDENTS ON EXTRAVERSION AND ANXIETY

C-AM = Caucasian Males; C-AF = Caucasian-American Females; J-AM = Japanese-American Males; J-AF = Japanese-American Females; E+A+ = Extraversion, High Anxiety Quadrant; E+A- = Extraversion, Low Anxiety Quadrant; E-A+ = Introversion, High Anxiety Quadrant; and E-A- = Introversion, Low Anxiety Quadrant.

view) as an "inhibition of external reactivity (in terms of past discouragement and present timidity), and greater attention to inner stimuli and ideas" (13, p. 268). In this sense, *introversion* is inhibition to social stimuli and the social self-concept. Consequently, Cattell (personal communication) feels

that an enduring *trait* (rather than a transient *state*) predictive of seeking or avoiding social interaction is being measured.

An important outcome of *kodawaru* is a lowering of leadership potential—particularly marked in the *sansei* male. Research work by Bartos and Kalish (8) found that, at the University of Hawaii, there appears to be an underrepresentation in campus leadership by *sansei* males, and greater social participation and leadership by *sansei* females. The findings of the present study are congruent with Kitano's (30) observation of "social backwardness" among a sample of mainland acculturating Japanese-American males, and adds support to Burma's (11) earlier commentary on the "leadership crisis" in this ethnic group.

Although there is a component of guilt (*sumanai*) in the *anxiety* concept, notably through the operation of Factor O, *anxiety* is viewed here as a global index of the degree of dynamic integration of the total personality system (16). A heightened *anxiety* pattern is not unexpected in light of the demands and expectations placed on the *sansei* (36, 37). It is hypothesized that this elevation is linked to (a) parental stress on academic achievement, (b) dependency-independency conflicts within the nuclear family, (c) familial pressure surrounding dating and courtship (which becomes particularly crucial in the case of interethnic and interracial relationships—one is reminded here of Kingsley Davis' "sociology of jealousy"), and (d) social control exerted by the "youth culture" (39). Only in extreme cases, however, where there is a disruption of interpersonal adjustment, does this particular personality reaction pattern warrant therapeutic attention. The elevation in anxiety level, in fact, may function to enhance academic performance. Dr. Arthur Dole at the University of Hawaii (personal communication) has consistently found high standards of achievement orientation in the *sansei* group, both in terms of expressed values and in subject-matter performance.

At present, there are two areas of much needed acculturation research, notably early socialization and peer group expectations. For example, Caudill (18) placed particular importance on early socialization experiences to account for modal personality differences between *issei* and *nisei*. Clearly the *issei* in Caudill's study had their values firmly rooted in the Japan of the late nineteenth and early twentieth century,⁶ while the *nisei* were faced with the resolution of two sets of cultural demands. Although the present study dealt with the *sansei* in the midtwentieth century, the subtle influences exerted by

⁶ Kimura (29) presents an interesting historical account of Japanese immigration patterns.

issei grandparents, as well as older *nisei* relatives on the early socialization of the present group, cannot be dismissed. The roots of ethnic identity are deep and autobiographical accounts obtained from *sansei* college students (by the writer) reflect many of the anxieties, irrational ideas, prejudices, and historical animosities of parents and grandparents. For example, one *sansei* male presented a "social justification" for his dislike of Caucasians by citing the way his immigrant grandparents were treated on a pineapple plantation. Traditional values, such as parental obedience, respect for elders, impulse control, and restraint (28), are still held to be "socially desirable" by *nisei* parents.⁷ The trait of responsibility, especially stressed for males, has persisted and is congruent with the traditional male-dominant culture of Japan (3, 27).

Aside from the family, another strong force that contributes to personality molding among Japanese Americans in Hawaii is the peer group. Although the influence is early and gradual, it reaches its peak in adolescence. An important facet of this influence is a strong ingroup perception of being a "local" island resident. Since many nonresidents are Caucasian (e.g., tourists, servicemen, students), a social polarity of "local" vs. "haole" (a semiderisive Hawaiian term meaning "foreigner," but used synonymously for a Caucasian) is formed. A stereotype of a "local" is built and supported by the "youth culture" through symbols, such as clothing, fads, hair styles, and the use of Pidgin English (12, 32, 35, 36). The "swell guy" image of the male and the "glamor girl" image of the female are Hawaii's own distinctive and multicultural counterparts of Talcott Parsons' (39) "youth roles." Parenthetically, it should be noted that *sansei* referred to remedial speech courses at the University of Hawaii tend to have decreased achievement standards⁸ and an accentuated E—A+ personality pattern (35)—an undesirable concomitant of oversocialization.

Because of the paucity of existing information, one can only speculate concerning the ontogenetic history of the E—A+ pattern in the *sansei* and the fate of this pattern in forthcoming generational groups. It was concluded that Doi's theory of *amae* and its potential implications for acculturation research among transitional Japanese groups offers a significant contribution to East-West psychology.

⁷ Some provocative changes in maternal attitudes, both in Japan and the United States, are discussed elsewhere (31).

⁸ Kitano (30) presents some alternative views on achievement patterns among acculturating Japanese Americans associated with middle-class "leveling."

E. SUMMARY

Research interest has recently shifted from *nisei* Japanese Americans to their third-generation offspring, the *sansei*. The purpose of the present study was to determine the differences between *sansei* college students and a comparable group of Caucasian Americans on a set of basic personality dimensions. The 16 P. F. Questionnaire was administered to 154 Japanese-American and 140 Caucasian-American students and the results analyzed both at a primary factor level and at a higher-order level. At the first-order, 11 of the 16 P. F. scales separate the males, while eight scales differentiate the females. At a higher-order level of analysis, *sansei* appear more introverted, more anxious, closer in proximity to clinically-diagnosed neurotics, and lower in leadership potential than Caucasians. There is a striking parallel between the introversion-linked-with-anxiety pattern of the *sansei* and Doi's theory of *amae*. The pattern was interpreted as a typically Japanese mode of "coming to terms" with the social environment. Several factors, including early socialization and peer group expectations, that relate to the maintenance of this pattern were discussed.

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SENSOTYPES*

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A. INTRODUCTION

Witkin (11) has shown that styles of approach to perceived surroundings differ among individuals. He has described a style termed field independence, a highly analytic approach to perceived material. This style in perception is indicated among individuals who can maintain attention to particular parts of a perceived world, no matter how confusing or "embedding" are the surroundings. Such people were also termed more "highly differentiated" because the relations among the parts of their perceived world tended to be highly complex, or elaborated. The opposite of this analytic style was termed field dependence, or global perception, found among people also described as less differentiated. Tests were devised involving visual materials, on which individuals were categorized as more, or less, field independent.

Having shown systematic individual differences in perceptual style, Witkin also related these styles to types of behavior. Analytic, field independent, types were considered to perceive the self as more distinct, more differentiated from surrounding social relations than did field dependent types. Such people were more individualist than were field dependent persons, and this arose from the type of parental socialization practices they experienced. Field dependent people were more sensitive in behavior to group norms than were field independent people, and were shown to have a characteristic pattern of early experience in upbringing.

All this was noted by Dawson (5), who worked in an African society where an extreme of nonanalytic approach resulted partly from the prevailing parental practices. Such findings were supported by scores on tests of the type used by Witkin (11), although it is noteworthy that these all required an analytic approach to visual material. Visual material is the currency of communication in an American, western society where the tests were developed. But the visual world and transactions therein may not be so relatively important in an African culture. Berry (3) showed that not only mode of parental discipline, but also wider environmental factors, such as the demands

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of the ecology studied by Barry, Child and Bacon (1), affect analytic behavior. One factor studied by Berry was the influence of language and the availability of words, and hence ideas as an apparatus necessary to the elaboration of an analytic style in the visual field in which his tests lay.

This study investigates two types of phenomena observed in some African cultures. One is that performance at visually specialised tasks is often poor—as found by McFie (8), Dawson (5), and Berry (3)—although it tends to improve with western type education—as noted by Doob (6) and Irvine (7); the second is that some African cultures (including the ones studied) contain considerable emphasis on sensory phenomena apart from the visual world. To begin with, among the peoples studied, babies are early in life strapped to their mothers' backs and spend much of their time upright; they learn to walk and even dance extremely early, and dancing and physical expressiveness remain extremely important elements in the activity of the culture. Many West African languages, including those of all the subjects studied, are tonal, and rhythm and tone direction are subjects of elaborated attention: that is, knowledge of subtleties and vigilance over confusions in this field of perception are likely to be well developed. While these are not proprioceived activities, yet they are not visual, and argue for directions of psychological elaboration apart from the visual world.

Evidence will be shown that the Nigerian subjects tested did not react to a range of tests with the same uniformity as that shown by the American subjects reported by Witkin (11). This is taken to suggest, together with cultural evidence, that men in the South Nigerian cultures studied may represent what may be called a "sensotype" different from "sensotypes" in western cultures, which are fast becoming established in southern Nigeria. By "sensotype" is meant the pattern of relative importance of the different senses, by which a child learns to perceive the world and in which pattern he develops his abilities. These patterns may be predominantly visual in one culture, while in another culture, auditory or proprioceptive senses may have a much higher relative importance.

B. TESTS AND SUBJECTS

Tests used in the study included Witkin's Rod and Frame Test, R.F.T. (11); a shortened version of his Embedded Figures Test, E.F.T. (10), using the items A3, A4, C1, C4, D1, D2, G1, and F1 illustrated there; other well-known tests including Kohs Blocks (shortened) and Ravens Matrices; and a new auditory test as yet unevaluated. The subjects were 173 workers of all levels from laborers (mostly illiterate) to trained mechanics, employed in

a large Nigerian industry. The men included 64 Ibos from east of the Niger, 39 Ibos born in the Midwest, 29 Edos, 22 Urhobos, and 19 others, all from southern Nigeria. Significant differences between test scores of different tribes were not found, on tests reported here. Of the 173 men, only 88 completed the R.F.T., and the tribes were represented (in the same order) by 38, 18, 16, nine, and seven men, respectively. A tactile version of the E.F.T. was also devised. In this version, the same designs as in the visual version were cut into plastic surfaces, the grooves being about 1.5 mm deep. The subject could thus look at the designs; he was also given a stylus and shown on the practice item how to draw it along the grooves of the diagram, following all the outlines available. Subjects were to see and trace out a simple figure, and then explore a complex diagram with the stylus until they identified where the simple figure was inset.

In interpreting the results, attention was paid to visual, proprioceptive, and tactile aspects of the tasks used, to intercorrelations among the tests, and to their relations with other criteria of ability.

C. RESULTS

The R.F.T. data were examined first (see Table 1). In this test, the subject sat on a chair in a completely dark room. Facing him was an illuminated square, set like a picture frame on the wall. The frame could be tilted left or right, to 28 degrees. Pivoted centrally within the frame, like the hand of a clock (equally long each side of the pivot), was an illuminated rod. This could also be tilted to right or left to 28 degrees. Confronted with a rod tilted from the vertical, the subject, whose chair could also be tilted, gave instructions on how to move the rod until it rested in what seemed to be the vertical direction. As handedness (only two out of 88 subjects were left-handed) is a phenomenon experienced proprioceptively, the data were studied for possible biases distinguishing left from right.

In the Discussion section, the relation of handedness, proprioception, and errors will be dealt with, but it should be clear that proprioceived data are important in R.F.T. performance. Particular proprioceptive variations introduced were due to the tilt of the chair; this has an effect different from that of tilting the frame, which is a visual variation (see Table 2).

An analysis of variance showed quite clearly that different conditions of frame and chair tilt with the same subject are measuring the same thing, and that differences between subjects are considerable; but this is only for conditions where the frame is tilted. When the frame is not tilted, errors are about one-tenth the size of errors occurring when the frame is tilted, and are

TABLE 1
EFFECTS OF CHAIR TILT, FRAME TILT, AND STARTING
POSITION OF ROD ON SIZE OF ERROR IN R.F.T. RESPONSES

| Chair position | Frame position | Errors greater when rod is | | Errors equal | Chi square |
|----------------|----------------|----------------------------|------|--------------|------------|
| | | Right | Left | | |
| Straight | Right | 57 | 26 | 5 | 11.45* |
| " | Left | 25 | 56 | 7 | 11.73* |
| " | Center | 50 | 25 | 13 | 8.24** |
| Right | Right | 50 | 33 | 5 | 3.45 |
| " | Left | 31 | 52 | 5 | 5.26* |
| " | Center | 34 | 34 | 20 | 0.00 |
| Left | Right | 47 | 29 | 12 | 4.26* |
| " | Left | 27 | 51 | 10 | 7.38* |
| " | Center | 46 | 25 | 17 | 6.14** |
| All positions | Right | 154 | 88 | 22 | 18.00* |
| " | Left | 83 | 159 | 22 | 23.86* |
| " | Center | 130 | 84 | 50 | 9.88* |

* Cases where error is larger when rod starts from the same side as the tilt of the frame. Significant at .05 or better.

** Errors greater when rod starts from right side, significant at .01 and unaffected by tilt of frame.

TABLE 2
EFFECTS OF CHAIR TILT AND FRAME TILT ON THE SIZE
OF ERROR IN R.F.T. RESPONSES
(Mean errors from the vertical, in degrees)

| Condition | Chair right | Chair straight | Chair left |
|--------------------|-------------|----------------|------------|
| Frame straight | 1.20 | 1.18 | 1.29 |
| Frame tilted right | 11.16 | 11.18 | 12.06 |
| Frame tilted left | 11.08 | 10.86 | 11.47 |

about the same regardless of the tilt of the chair. Thus the subjects show that their proprioceptive skills will compensate for the proprioceptive variations of the tilted chair, but that they are not nearly so capable of dealing with a visually registered displacement.

Witkin's theories maintain that analytic style in one sense modality is likely to correlate highly with analytic style in another sense modality. While this may be so in an American setting, there is evidence that such is not the case among the Nigerian subjects tested. This may be seen from the following correlations (see Table 3).

The interrelationship of the E.F.T., Kohs Blocks, Ravens Matrices, and education are striking. All these are indices of demands on analytic ability in a visual field. This ability evidently is strengthened with education, which in all cases here is western education, in the English language, involving literacy

TABLE 3
CORRELATIONS BETWEEN TESTS OF FIELD INDEPENDENCE,
AND OTHER VARIATES

| Variate | R.F.T. | E.F.T. | Kohs Blocks | Ravens Matrices | Education | Job efficiency | N |
|------------|--------|--------|----------------|--------------------|-----------|-------------------|-----|
| R.F.T. | 1.0 | 0.184* | 0.157* | 0.192* | 0.036* | 0.260 | 88 |
| E.F.T. | | 1.0 | 0.633 | 0.510 | 0.466 | 0.068* | 173 |
| Kohs | | | 1.0 | 0.532 | 0.375 | 0.062* | " |
| Ravens | | | | 1.0 | 0.295 | -0.126* | " |
| Education | | | | | 1.0 | -0.049* | " |
| Efficiency | | | | | | 1.0 | " |

* Values of r not significant.

For $N = 88$, .05 significance arises when $r = 0.217$; for $N = 173$, .05 significance arises when $r = 0.159$.

and at higher levels familiarity with diagrams and figures. The R.F.T., however, does not correlate significantly with any of the other tests, two of which have been labelled and devised as tests of field independence, and the third of which (Ravens Matrices) seems on the logic of its construction and on the correlations above to be closely related. The R.F.T. is thus apart from the "book learning" tests of analytic style, or field independence. It is particularly independent of the effects of formal education, which answers objections that the test was not properly explained to and understood by all the subjects.

The most striking finding, however, is that whereas none of the other "book tests" of field independence correlates with the rating made by the men's managers for job efficiency, R.F.T. results do correlate with efficiency. This finding supports the possibility that ability is elaborated among these Nigerians in a way that is not entirely detectable by visual type tests, but is manifest in the R.F.T. test (a test that is not closely related to the purely visual tests of field independence). The work of Beveridge (4) is relevant here; he considered that Africans whom he tested in Ghana had skills more elaborated in a proprioceptive than in a visual realm.

To inquire further into the nature of visual and proprioceptive skills and how they may be interrelated, a tactile embedded figures test was used. The items were the same as those given in the visual E.F.T. Following the first testing with the visual E.F.T., two subgroups were chosen so that the E.F.T. score of each man in one subgroup was matched by an equal score of a man in the other subgroup. Five months after doing the first, visual, E.F.T., the retest was given. One subgroup completed the test visually, exactly as before; the other completed the tactile version.

No significant difference was found in favor of the group repeating the test in the tactile manner, although in fact this group improved more than

the other (see Table 4). No differences were significant on any of the matching checks carried out. It is noteworthy that even after a five-month time lag, E.F.T. performances did improve on average by about 20 per cent.

It had been thought that subjects tracing the designs with a stylus as well as looking at them would be in a better position to improve. Particularly, it

TABLE 4
THE EFFECTS OF TACTILE CUES AS AN AID TO IMPROVEMENT
IN E.F.T. SCORES, AMONG NIGERIANS

| Method | 1st E.F.T. | Gain in E.F.T. | Age | Kohs Blocks | R.F.T. | N |
|----------------|------------|-------------------|------|----------------|--------|----|
| Normal method | 27.40 | 6.83 | 32.6 | 8.73 | 11.86 | 30 |
| Tactile method | 27.40 | 8.00 | 33.0 | 8.60 | 10.93 | 30 |
| <i>t</i> | 0.0 | 1.01 | 0.02 | 0.02 | 0.65 | — |
| Significance | — | NS | NS | NS | NS | — |

was thought that errors where mirror-image shapes are pointed out, and others where correct shapes (although of wrong size) are shown, might be reduced. That tactile cues were not significantly helpful is considered possibly due to a distraction effect that arises when two types of information are available. Attention, it seemed, was not often paid to the tactile "feel" of the diagrams (which previously some subjects had indicated they might make good use of, by looking away and apparently trying to memorize figures by outlining shapes in the air with their fingers); sometimes, when subjects seemed to be attending to the tactile "feel," they appeared to mislead themselves as to the visual nature of the figures they were searching for. Thus, for example, a man might gaze into the distance and try to trace out a square instead of a triangle. The test turned out to be unsuitable for investigating proprioceptive sensibility. It appeared to be much too related, in the imagery it required, to visual material. Finally, the figures being used were geometric ones, often without translatable names in the local languages, and thus subjects possibly lacked a principal aid in retaining either visual or tactile impression of an image: namely, names by which to identify the figures.

D. DISCUSSION AND SUMMARY

Results in Table 1 showed that the position of the frame relative to the rod in the R.F.T., as a visual experience, strongly determines the direction in which errors may occur. Secondly, when the frame is kept straight but the chair tilted, errors are more often greater when the rod starts from a tilted-right than from a tilted-left position. An exception to this is when the rod and chair are both tilted right. In directing the rod to be moved away

from their position of chair tilt, subjects made smaller errors compared to instances when they directed the rod to be moved toward their position. The inferences are that rod and frame are clearly part of one world of visual experience, and also that handedness plays a part in determining in what circumstances each subject will make his greatest errors. Clearly, more remains to be understood about the way in which visual and proprioceptive sensibilities play their parts in performance of the R.F.T. task. An experiment including a large number of left-handed subjects might confirm some conclusions about handedness.

Table 2 suggests that the R.F.T. does not involve the subject in transactions in a visual field alone, but also with proprioceived information. Possibly the test can distinguish between subjects according to the extent to which ability has proliferated in each person in the sphere of proprioception. Further, such proprioceptive elaboration of ability may not be proportional to the ability developed in the world of visual material. This is the suggestion being made about the structure of abilities among the Nigerian subjects tested.

A principal element in Witkin's theory of field independence has been confirmed in this data from Nigeria: there are important individual differences in cognitive and analytic approach to perceived material. A second major point of his theory is that within each individual the degree of analytic functioning will tend to be constant throughout a wide range of activities (or sensory fields). This second element of his theory may well be subject to modification from his own work (12) with congenitally blind subjects. These people performed worse than sighted subjects of similar intelligence with tactile tests, although they performed better than sighted subjects at an aural test of resistance to camouflaging contexts. It is possible to interpret these results in terms of an elaboration of skills and analytic functioning, not as a generalised phenomenon within each individual, but related to particular fields of sensory experience. That is to say, the blind, lacking a visual world, develop their differentiation and analytic abilities in an auditory world.

In the case of many West African cultures, communication styles have not yet widely elaborated what McLuhan (9) calls "the Gutenberg Galaxy." This is the world of print, where representation on paper forms what Bernstein (2) refers to as an elaborated code, one that is in a visual context. In such West African cultures there are often found tonal languages, rich experience and discernment of rhythm and of physical movement in dancing. It can be argued that "the visual arts" in West Africa are often sculptural, in which the visual elements of veracity are of equal or less importance than the solid tactile and social significance of the works. The sensory realms, within which

analytic ability or differentiation may be expected to elaborate and prosper, are not so completely visual, then, as is the case in America and the West; in such African cultures, they are more proprioceptive and auditory than visual. An individual skilled in the media of such a culture may be said to represent a sensotype different from that of individuals skilled in a visual world.

A new line of research has been opened by Berry (3), who suggested that certain African languages may be without the words (necessary labelling apparatus) for identification and analytic activity with printed (visual) designs and material. He showed that the Temne tongue (Sierra Leone) was without words for several geometric shapes, easily visually differentiated and labelled in western languages. Interview data suggested that similar difficulties, of not having words other than circumlocutions for "square," "hexagon," "diagonal," etc., existed in Ibo and Edo languages, which were mother tongues of most of the subjects tested here. Research remains to show in what directions such African languages are more highly elaborated, and hence wherein men's abilities have opportunity to become differentiated. Thus while western languages may be shown to make use of a great number of metaphors referring to the sense of vision, perhaps in excess of other sensory metaphors, it remains to be seen (or heard) with which senses African languages prefer to illustrate (or sing of) their experience.

McLuhan (9), at least, among western writers, has realised the possible existence of different styles of communication, involving different technologies (apparatus external to the individual). The parallel idea is that different styles of communication (oral tradition, print, or electric recording) are related to different modes of sensory elaboration (apparatus internal to the individual) adapted to these communication media. These different modes, or types of sensory elaboration, are labelled sensotypes.

The evidence in this paper primarily concerns one test, the R.F.T., established as reliable among American subjects and closely related to visual tests there. This test argues a generality of style of analytic functioning in a given individual, within the American culture. In Southern Nigerian subjects tested, the R.F.T. is shown to be not nearly so closely related (if at all) to visual tests of analytic functioning, which are shown to be related to (western) education. The Southern Nigerian performance on R.F.T., however, is related to work efficiency ratings. This test then may be a better measure of ability, as it may lie in the true milieu of elaboration of analytic functioning among such Nigerians influenced by traditional culture. People who are found to show analytic ability especially in one sensory realm, are held to represent a

"sensotype" different from that of persons who develop analytic ability in another realm. The distinction may be forced upon individuals within a culture, as by the circumstances of congenital blindness, or it may arise through a totally different cultural experience.

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DIFFERENCES IN MMPI SCORES IN NATIVE AND NONNATIVE ALASKANS*

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A. INTRODUCTION

Although the use of the Minnesota Multiphasic Personality Inventory (MMPI) has spread as a means of measuring the clinically important phases of personality, its use in cross-cultural analysis has been restricted. Studies are available involving comparisons of racial groups within the United States (1, 3, 5, 8, 9, 10, 11). Differences in scale averages undoubtedly reflect socioeconomic inequities as well as racial membership (3, 10). The MMPI has been translated into 15 languages and this facilitates cross-cultural comparisons (4); however, difficulties with transliteration into equivalent symbols are present in 50 per cent of the test items (13). Since few data are available on different ethnic groups, it is of considerable value to present the MMPI scores of Eskimos, Aleuts, and Indians attending the University of Alaska. These data do not have the inherent disadvantage of being obtained from translated tests.

B. METHOD

The MMPI was administered as a group test to both native and nonnative freshmen entering the University of Alaska in 1962-1964. The category "native" will follow the definition of the Bureau of Indian Affairs and includes "the aboriginal races in Alaska at the time of annexation by the United States in 1867, and their descendents of whole or mixed blood" (14, p. 1). One hundred nonnative students were selected randomly for comparison from the 1962 data on file for all University of Alaska students. Approximately 75 per cent of the latter graduated from Alaskan high schools. The tests were machine scored, transformed into *T* scores, and the scales were *K*-corrected by Testscor in Minneapolis, Minnesota. *T* scores that fall below 30 or above 70 are outside two standard deviations from the mean of the normative

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adult population. The marked skewness in the distribution on MMPI scales results in many more extreme scores in the high range (4).

Since the assumption of normality is not fulfilled in MMPI distributions, the nonparametric Wilcoxon sign rank test was used in examining the scale means as a group.

In addition to examining the subjects' mean scale scores, a profile analysis was developed using the Welsh coding system. The Welsh system [*cf.*, (3, pp. 19-21)] ranks the scores in the order of *T*-score elevation, highest to lowest. Thus, the MMPI code for the native male is 782-49 63510 (see Table 1). For these subjects Scale 7 (Pt = Psychasthenia) is highest or most deviant, followed by Scales 8 (Sc = Schizophrenia) through 0 (Si = Social introversion-extroversion). In Welsh coding, elevation symbols are used between various scales; Scales 70 to 79 are followed by ', 60 to 69 by —, 50 to 59 by /, etc. When two or more scales are within one *T*-score point of each other, these scales are underlined. In this paper the Welsh codes of the subjects have been compared in the following way:

The most deviant scale with its position to the far left in the Welsh code was considered to lie in position 1. Each successively lower scale in the code was designated to be in positions 2, 3, etc., through 10. Those scales within one mean point of each other, and thus underlined in the code, were placed at an equivalent midpoint position. For example, with the Aleut male profile (see Table 2), Scale 7 would be in position 1; Scales 2 and 8 share positions 2 and 3 and are both given position 2.5; Scales 4, 1, and 3 are in position 5; and Scales 6, 0, 5, and 9 are in positions 7, 8, 9, and 10, respectively. Using this technique, we may quantify the difference in scale position in two profiles. Thus, Scale 9 has moved from position 10 in the Aleut male to position 3 in the Eskimo male, or a change in 7 positions. Similarly, Scale 1 has moved from position 5.5 to position 10, or a change of 4.5. Recording all of the changes not only gives a measure of the shifts of specific scales but also allows an average to be computed. In a comparison of two profiles each with 10 scales, the highest possible average is 5.

C. RESULTS AND DISCUSSION

Table 1 summarizes the mean scores for students at the University of Alaska and includes data from two general studies of college students (2, 6). The validity scales were within the expected range. It is noteworthy that the natives placed more items in the "Cannot Say" category (Scale ?) than did the nonnatives. K and F scales are considered to reflect personality patterns diagnostic of different socioeconomic levels (4). Consequently, it is interesting

TABLE 1
T-SCORE MEANS, STANDARD DEVIATIONS, AND MMPI CODES FOR NATIVE AND NONNATIVE STUDENTS
AT THE UNIVERSITY OF ALASKA

| Group | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
|--------------------------|----------------------------------|-------|--------|--------|-------|--------|----|----|----|----|
| | Hs | D | Hy | Pd | Mf | Pa | Pt | Sc | Ma | Si |
| Male | | | | | | | | | | |
| Native N = 51 | | | | | | | | | | |
| mean | 2.7 | 4.0 | 56.2 | 60.0 | 57.2 | 59.7 | | | | |
| (SD) | (4.7) | (2.7) | (10.6) | (9.6) | (9.3) | (10.8) | | | | |
| | MMPI Code <u>782-49 63510</u> | | | | | | | | | |
| Nonnative N = 50 | | | | | | | | | | |
| mean | 0.9 | 3.8 | 53.2 | 56.9 | 57.3 | 58.6 | | | | |
| (SD) | (2.3) | (2.0) | (9.8) | (10.8) | (6.8) | (10.1) | | | | |
| | MMPI Code <u>87-54 932061</u> | | | | | | | | | |
| U.S. College N = 5035 | | | | | | | | | | |
| mean | — | — | 52.3 | 52.8 | 55.0 | 56.3 | | | | |
| (SD) | | | (8.3) | (11.1) | (7.8) | (9.8) | | | | |
| | MMPI Code <u>95 874 3 621</u> | | | | | | | | | |
| Female | | | | | | | | | | |
| Native N = 40 | | | | | | | | | | |
| mean | 2.0 | 3.5 | 53.4 | 53.4 | 55.0 | 59.8 | | | | |
| (SD) | (8.8) | (2.3) | (7.8) | (9.6) | (9.2) | (10.7) | | | | |
| | MMPI Code <u>98 47 06 3 512</u> | | | | | | | | | |
| Nonnative N = 50 | | | | | | | | | | |
| mean | 1.6 | 3.6 | 51.1 | 50.8 | 55.1 | 58.6 | | | | |
| (SD) | (6.3) | (2.0) | (6.4) | (9.2) | (6.8) | (10.4) | | | | |
| | MMPI Code <u>9-48 67 30 12/5</u> | | | | | | | | | |
| U.S. College N = 5014 | | | | | | | | | | |
| mean | — | — | 48 | 48 | 54 | 54 | 53 | 54 | 55 | — |
| | MMPI Code <u>9348675/12</u> | | | | | | | | | |

Note: Validity scales include the Cannot Say score (?), and the L, F, and K scales. The 10 clinical scales include the following: 1. Hypochondriasis (Hs), 2. Depression (D), 3. Hysteria (Hy), 4. Psychopathic deviate (Pd), 5. Masculine-feminine interest (Mf), 6. Paranoia (Pa), 7. Psychasthenia (Pt), 8. Schizophrenia (Sc), 9. Hypomania (Ma), and 0. Social introversion-extroversion (Si).

TABLE 2
T-SCORE MEANS, STANDARD DEVIATIONS, AND MMPI CODES FOR ALEUTS, ESKIMOS, AND INDIAN STUDENTS
AT THE UNIVERSITY OF ALASKA

| Group | ? | L | F | K | Hs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
|--|--------------|--------------|--------------|---------------|----------------|----------------|----------------|----------------|---|----------------|----------------|----------------|----------------|----------------|----------------|
| <i>Male</i> | | | | | | | | | | | | | | | |
| Aleut <i>N</i> = 10 mean (<i>SD</i>) | 2.4 (4.5) | 4.4 (3.0) | 6.1 (3.6) | 14.5 (4.4) | 61.7 (10.4) | 69.5 (10.9) | 60.7 (8.9) | 62.4 (8.0) | | 55.9 (6.7) | 59.2 (9.4) | 70.5 (14.3) | 68.9 (13.0) | 54.5 (7.1) | 58.1 (7.1) |
| MMPI Code 7-28 4136-059 | | | | | | | | | | | | | | | |
| Eskimo <i>N</i> = 25 mean (<i>SD</i>) | 2.9 (4.8) | 4.2 (2.8) | 6.8 (5.5) | 13.4 (5.4) | 55.2 (10.2) | 58.2 (11.1) | 56.8 (9.2) | 58.6 (10.3) | | 58.0 (10.4) | 57.6 (12.0) | 65.8 (14.1) | 64.4 (17.2) | 59.9 (9.4) | 58.7 (8.5) |
| MMPI Code 78-90425631 | | | | | | | | | | | | | | | |
| Indian <i>N</i> = 16 mean (<i>SD</i>) | 2.6 (4.7) | 3.5 (2.3) | 5.4 (3.8) | 13.3 (4.7) | 54.3 (10.7) | 56.9 (11.5) | 55.8 (9.9) | 59.9 (13.2) | | 56.4 (11.7) | 56.0 (5.3) | 59.1 (11.4) | 60.1 (13.0) | 67.5 (10.0) | 50.3 (11.6) |
| MMPI Code 98-47 2563 10 | | | | | | | | | | | | | | | |
| <i>Female</i> | | | | | | | | | | | | | | | |
| Aleut <i>N</i> = 3 mean (<i>SD</i>) | 1.7 (1.5) | 2.3 (1.5) | 8.3 (8.7) | 14.3 (2.5) | 56.0 (8.7) | 59.7 (4.7) | 60.3 (12.7) | 67.7 (6.0) | | 45.7 (7.0) | 59.7 (16.7) | 64.3 (5.8) | 66.7 (6.4) | 63.0 (5.0) | 60.7 (9.9) |
| MMPI Code 48 79 03-261/5 | | | | | | | | | | | | | | | |
| Eskimo <i>N</i> = 19 mean (<i>SD</i>) | 1.0 (2.4) | 3.4 (1.7) | 5.8 (5.5) | 13.2 (3.7) | 52.0 (7.1) | 50.5 (10.1) | 53.2 (9.2) | 58.0 (12.7) | | 56.1 (8.7) | 55.6 (7.4) | 58.0 (7.4) | 61.7 (11.5) | 63.5 (10.2) | 55.5 (10.3) |
| MMPI Code 98-47560312 | | | | | | | | | | | | | | | |
| Indian <i>N</i> = 18 mean (<i>SD</i>) | 3.3 (8.0) | 3.9 (2.8) | 6.2 (3.7) | 13.8 (4.9) | 54.4 (8.4) | 55.4 (8.8) | 56.0 (8.7) | 60.3 (8.5) | | 52.3 (7.2) | 55.7 (9.4) | 59.4 (9.7) | 62.1 (9.4) | 61.7 (2.8) | 57.4 (4.6) |
| MMPI Code 89 4-7036215 | | | | | | | | | | | | | | | |

Note: Validity scales include the Cannot Say score (?), and the L, F, and K scales. The 10 clinical scales include the following: 1. Hypochondriasis (Hs), 2. Depression (D), 3. Hysteria (Hy), 4. Psychopathic deviate (Pd), 5. Masculine-feminine interest (Mf), 6. Paranoia (Pa), 7. Psychasthenia (Pt), 8. Schizophrenia (Sc), 9. Hypomania (Ma), and 0. Social introversion-extroversion (Si).

to note the similarity in the K values of the two groups and the only slight elevations of the F values of the natives.

Both female and male natives had higher scores than did their nonnative counterparts ($p < 0.05$). The specific scales where nonnatives had higher means were the Hysteria (Hy) and Masculine-feminine interest (Mf) for the males and Hy, Paranoia (Pa), and Hypomania (Ma) for the females. Only the reversal of the Mf was marked; the native male is less feminine than the nonnative male. The use of the Welsh coding system, which ranks the highest scales from left to right, allows a comparison of the group profiles. In the native male profile the relative position of Scale 2 (D = Depression) is elevated and Scale 5 (Mf) is depressed compared to the nonnative code. Aside from these differences, the profiles are similar with peaks on Scales 7 and 8 (Pt, Sc) and valleys on Scales 1 (Hs = Hypochondriasis) and 0 (Si).

In light of the conclusion that there is a consistency in pattern between colleges in different regions of the country (6), it is notable that the University of Alaska nonnatives generally had higher mean scores than did other schools. Scales 9 (Ma) for the males and 5 (Mf) for females were exceptions. The Welsh codes for the two groups do not differ greatly. The relative position of Scale 9 is depressed and a minor elevation occurs in Scales 8 and 7 in the Alaskan male. In the female Alaskan the relative position of Scale 5 is lowered. Consequently, Alaskan college students were generally more deviant except for tendencies of the males to be less emotionally excitable and the females to be less masculine than their counterparts in the college population at large.

The mean scores for both native and nonnative Alaskans conform to the previous finding that males are more deviant than female college students (6). College students as a group are more deviant than the general adult population, which has prompted a plea for separate norms (6). The still greater deviation of the Alaskan student also demands separate normative standards for this group. It is tempting to postulate that the greater deviation of the Alaskan may be brought about by his decreased exposure to the United States culture in comparison with the typical college freshman. Naturally, the native population with reduced contact would be expected to deviate further.

The subdivision of the natives brings additional differences to light (see Table 2). When the mean scores of the males were ranked, the Aleuts were most deviant, then the Eskimos, followed by the Indians. Although tests made between the three groups were not quite significant, this was almost solely due to reversals in Scales 5 and 9. To stress the degree of deviation, the Aleuts had six mean scores ≥ 60 and one > 70 . The Eskimos

and Indians each had only two scale scores ≥ 60 . Differences also occurred in the female means: the Aleuts were generally highest, followed by the Indians and then the Eskimos. Wilcoxon sign rank tests of the 10 scale means between the groups did not quite show significance, and reversals were in Scales 5 and 9. Since the exceptions were almost exclusively limited to these two scales in both sexes, the above ranking of the natives seems statistically reliable. A profile analysis strengthens this view.

Averages of scale changes for native males are as follows: 2.9 for Aleuts *vs.* Indians, 2.5 for Aleuts *vs.* Eskimos, and 1.2 for Eskimos *vs.* Indians. The least difference in scale position is between the Indian and Eskimo, whereas the Aleut differs considerably from both. A ranking of scale changes shows the same patterns seen in the comparison of actual mean scale scores: Aleut $>$ Eskimo $>$ Indian. In the movement of specific scales, Scale 9 was most pronounced with less change in 1, 2, 7, and 0.

Among the female native profiles an average change of 1.6 was found between the Aleuts and Eskimos, 1.3 for Indians *vs.* Eskimos, and 1.1 for Aleuts *vs.* Indians. The amount of change was minor and similar among the groups, as was noted previously in the comparison of mean scores of females. The same relative position of the group is apparent: Aleut $>$ Indian $>$ Eskimo. The position of Scale 5 is of most interest. In both the Aleuts and Indians it was lowest, while in the Eskimo female it was elevated.

There are considerable hazards involved in assuming that the MMPI will validly identify the same personality trait in different cultures. Difficulties in interpretation of the test items by the subjects were reduced because of the familiarity that the natives have with the English language. Nevertheless, they do not test as highly as do nonnative students in English ability (7). Also, a lower percentage of native students (21 per cent) was from large school systems (Fairbanks, Anchorage, Juneau) than were nonnative Alaskans (54 per cent). Although no differences in MMPI scores were apparent between natives attending small and large schools, statistically higher scores were obtained in achievement tests (American College Test) by the latter group (7). The somewhat higher number of unanswered items (Scale ?) by the natives may indicate problems in understanding.

The Alaskan native appears more deviant than the Alaskan nonnative and considerably more deviant than the United States college population elsewhere. It is probable that the degree of contact between the western and native cultures is partly responsible for such differences; certainly cultural values differ. If the amount of deviation from the established norms is interpreted as a measure of acculturation, the variations within the native are of

special concern. Evaluation of intensity, duration, and quality of culture interaction is difficult. Should the Aleuts of both sexes be considered to be least assimilated into the United States society? What is the reason for the reversal of the Indians and Eskimos in the female and male comparisons? Can we attribute this difference to the greater concern of the female Eskimo to identify with western customs and a greater interest in leaving the village than the concern and interest of the male Eskimo (12)? Future study using the MMPI will likely reveal a gradual reduction in the differences between the above groups and thus provide signposts of acculturation.

D. SUMMARY

The Minnesota Multiphasic Personality Inventory was used to compare native with nonnative students at the University of Alaska. Mean scale scores of natives were more deviant than scores of nonnative Alaskans, which were in turn more deviant than scores of United States college groups tested elsewhere. Subgroups of natives were ranked from the most to the least deviant group based on mean scale scores and a profile analysis technique: males, Aleuts > Eskimos > Indians; females, Aleuts > Indians > Eskimos. It is suggested that the differences among groups may reflect the degree of acculturation into United States society.

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STABLE ATTITUDE FACTORS IN NATURAL ISOLATED GROUPS*¹

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A. INTRODUCTION

Factor analysis has proven most advantageous in reducing large numbers of heterogeneous variables to relatively few dimensions. The efficiency in measurement thus achieved often contributes importantly to reductions in research time and labor, as well as to increases in experimental precision. The present study is an attempt to identify a small number of attitude dimensions that could represent important aspects of individual and group functioning in an unusual natural setting. Replication of the factor structure of the attitude measuring instrument in two studies was essential to provide evidence for the presence of dependable, nonspurious constructs. The study is part of a larger research program concerned with the ability of groups at scientific stations in Antarctica to maintain positive social attitudes and effective work behaviors during prolonged isolation from the outside world.

B. EARLIER RESEARCH

Two inventories, the Attitude Study and the Group Behavior Description, were assembled by Zimmer (4) for evaluating group and individual functioning at several Antarctic scientific stations during the period of the International Geophysical Year (IGY) in 1957-1958. The inventories were administered on two or more occasions during the period of complete isolation imposed by extreme weather conditions. Responses were given on five-point scales, "strongly agree" to "strongly disagree." When the items were inter-correlated, 10 internally consistent sets of items were tentatively identified.

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² The research was conducted at the U.S. Navy Medical Neuropsychiatric Research Unit, San Diego, California. The senior author is now with the Pacific State Hospital, Pomona, California.

Items in these clusters were similar in content and were more highly correlated with items within the cluster than with other items. The content areas defined by these clusters in the Attitude Study inventory were (*a*) motivation for the expedition, (*b*) physical adjustment, (*c*) confidence in the organization, (*d*) personal usefulness, and (*e*) boredom. In the Group Behavior Description inventory the cluster content concerned (*a*) group compatibility, (*b*) teamwork, (*c*) efficiency, (*d*) achievement, and (*e*) egalitarian atmosphere. Gunderson and Nelson (1) utilized the 10 scales to study attitude changes in six small station groups that were part of two IGY expeditions. A new inventory, the Opinion Survey, was then constructed from items included in the 10 earlier scales. This single inventory was administered to new groups at three Antarctic stations twice during the winter period. Attitude changes again were measured and results were reported by Gunderson and Nelson (2). The results corroborated earlier findings that scales reflecting group harmony and efficiency showed considerable change in the direction of deterioration over the period of maximum confinement and restriction of activity.

When intercorrelations among the scales were examined for the three expeditions in which they were used, it became evident that some of the scales were consistently intercorrelated, suggesting that the underlying factor structure was somewhat simpler than the cluster analyses had indicated. Factor analyses in the earlier Attitude Study and Group Behavior Description inventories were then undertaken in a preliminary effort to determine the underlying factor structure of the attitude domain represented. Responses from two administrations of each inventory in each of two expeditions were factor analyzed, producing eight separate analyses and replicating results for each inventory over samples and over situations. Samples for these analyses ranged from approximately 85 to 150 subjects.

In all administrations of the Attitude Study inventory, a large major factor appeared that reflected motivation for and satisfaction with the Antarctic assignment. Additional significant factors emerged in one or another of the four administrations, but none was represented consistently on more than two occasions. In both first administrations of the Group Behavior Description inventory, two very similar major factors were represented, one encompassing the group compatibility and teamwork concepts and the other, group achievement and efficiency. At the second administration (end of winter period), however, in both years these two factors merged into one very large factor with two or three small additional factors absorbing the remaining content. Some doubt remained, therefore, concerning the dependable presence of a

group accomplishment factor in the earlier test instrument. Generally, then, the earlier analyses yielded expected factor structures to some degree, but highly consistent factors failed to emerge upon replication in one of the inventories.

Since the new inventory, Opinion Survey, contained items identical with or similar to those in the earlier inventories and also omitted many items that were unrelated to the principal content areas of interest, more clear-cut analyses of the major attitude factors were possible with the testing of new station groups in a later expedition.

C. CURRENT STUDY

1. *Subjects*

The subjects for the major study to be reported were 83 Navy and civilian participants in the Antarctic research program at three small scientific stations. At these isolated sites on the Antarctic continent, scientists and technicians conducted basic research sponsored by the National Science Foundation in physics, geology, glaciology, and other disciplines. The U.S. Navy provided logistic support for these scientific endeavors, and naval personnel also lived and worked at the stations. Seventy-nine station members completed the inventory at the first administration; 83 responded at the second administration.

2. *Procedures*

Medical officers at each of the three stations administered the Opinion Survey to station members on two occasions during the period of isolation, early winter (soon after withdrawal of summer support personnel) and late winter (prior to the arrival of replacements). The inventory consisted of 67 items in the form of statements to which the subjects responded on a six-point scale ranging from "strongly agree" to "strongly disagree." Responses to the 67 items were intercorrelated and factor analyzed by the principal-axes method for each of the two administrations. Eleven factors were extracted from the first analysis and 10 from the second. Rotation of factors was accomplished within the same computer program using the normal varimax method (3), which yields an orthogonal rotational solution.

D. RESULTS

The results of the two factor analyses are presented in Table 1. The first and largest factor in both administrations was that pertaining to group compatibility, teamwork, and pride in group; it was labeled Social Compatibility. This result had been anticipated from the earlier research and left little doubt

TABLE 1
REPLICATED ATTITUDE FACTORS IN ANTARCTIC GROUPS

| Item | Administration | |
|---|-----------------|-----|
| | 1st | 2nd |
| <i>Factor I: Social Compatibility</i> | | |
| There is a pretty good feeling among the men at this station. | 81 ^a | 78 |
| Everyone at this station respects the rights of others. | 72 | 56 |
| It's hard to get this bunch of guys to agree on much of anything. | -68 | -56 |
| The men at this station are the kind of men I like to spend a lot of time with. | 65 | 61 |
| Everybody pulls together to get things done around here. | 59 | 70 |
| Group spirit at this station is high. | 53 | 68 |
| Some of the men here tend to think only of themselves, even on matters that affect everyone. | -50 | -68 |
| Everyone at this station enjoys getting together for a bull session. | 58 | 62 |
| I would rather be with the men at this station than almost any of the groups I have worked with before. | 56 | 60 |
| The men at this station work well together as a team. | 62 | 71 |
| Internal consistency reliability estimate (based upon average item intercorrelations). | 87 | 89 |
| <i>Factor II: Personal Motivation</i> | | |
| I would like to go on another Antarctic expedition in the future. | 77 | 82 |
| I wish I could stay in the Antarctic longer than now planned. | 74 | 81 |
| I often wish I had never come to the Antarctic. | -69 | -81 |
| I am happier with my job here than I was in my last assignment. | 65 | 80 |
| Time passes too slowly in the Antarctic. | -68 | -45 |
| Being part of an Antarctic expedition is the highlight of my career. | 51 | 55 |
| This climate tires me out quickly. | -52 | -31 |
| In the Antarctic I am contributing more to the Navy than I would be at most other assignments. | 45 | 42 |
| Internal consistency reliability estimate (based upon average item intercorrelations). | 82 | 84 |
| <i>Factor III: Group Accomplishment</i> | | |
| Everyone takes a lot of pride in what this group accomplishes. | 64 | 36 |
| This group could accomplish almost anything it sets out to do. | 53 | 56 |
| When the going gets rough this group is at its best. | 50 | 53 |
| This group does not seem to accomplish much. | -54 | -31 |
| Everyone here would feel badly if the group did not accomplish its mission. | 49 | 56 |
| We usually have a good idea of what everyone else is doing. | 49 | 23 |
| Internal consistency reliability estimate (based upon average item intercorrelations). | 70 | 81 |

^a Rotated loadings for factors which were closely matched in the two administrations; decimals are omitted.

that liking for one's associates, cooperation, and *esprit de corps* were very important aspects of Antarctic station effectiveness as perceived by the participants. Internal consistency reliability of this scale based upon item intercorrelations was estimated to be about .88.

The second factor to emerge in both analyses was concerned with motiva-

tion for and personal satisfaction with the Antarctic assignment. From the results of earlier studies this factor also was anticipated; but the effects of boredom appeared to have more importance in this general area than was expected, while items reflecting feelings of personal usefulness received surprisingly little weight. The second factor was labeled Personal Motivation. The internal consistency reliability of this scale was estimated to be about .83 based upon the item intercorrelations.

The third factor common to the two analyses was concerned predominantly with awareness of and feelings about the achievements of station members as a group. This factor was labeled Group Accomplishment. The internal consistency reliability of this scale was estimated to be about .75.

The remaining factors emerging from the two analyses were poorly defined, either having consistently low factor loadings or shifting composition revolving around two or three highly similar items. For example, one factor tentatively identified on both occasions was that pertaining to formality-informality of group relationships (earlier called egalitarian atmosphere), but low internal consistency and the presence of few high factor loadings gave this factor a tenuous status.

E. DISCUSSION

Because of the staggering practical difficulties and costs in time and labor involved in collecting behavioral data in remote field settings, such as the Antarctic, the simplicity and economy of the factor structure attained was gratifying. The factor consistency from one occasion to another was reassuring and appeared to reflect the appropriateness and meaningfulness of the questionnaire content to the participants. The three factors identified—Social Compatibility, Personal Motivation, and Group Accomplishment—logically represent important aspects of individual and group life and are highly relevant to the goals of the Antarctic program.

The study has made possible an abbreviated test instrument that can be utilized to measure changes in individual motivation and in group cooperation and effectiveness under extreme field conditions. Measurable deterioration in social relationships and work effectiveness during prolonged confinement has been recorded previously with less efficient test instruments (2), and these earlier scales were shown to relate consistently to an independent criterion of group effectiveness. Development of more reliable measurements of significant dependent variables should permit more refined analyses of group-member characteristics, leadership practices, and environmental conditions that relate to group adaptation and performance in stressful natural settings than have been possible previously.

F. SUMMARY

Factor analysis was utilized to identify a small number of attitude dimensions that reflected important aspects of individual and group functioning at isolated Antarctic stations. Earlier analyses of two separate inventories administered twice during the winter period in two expeditions suggested the presence of three significant factors representing the concepts of Social Compatibility, Personal Motivation, and Group Accomplishment. Additional analyses with a new single inventory administered to 83 Navy and scientific Antarctic personnel on two occasions during the winter period confirmed the presence of essentially the same three factors and demonstrated their stability over time.

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THE EFFECT OF ORIENTATION AND FEEDBACK OF SUCCESS AND EFFECTIVENESS ON THE ATTRAC- TIVENESS AND ESTEEM OF THE GROUP*¹

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A. INTRODUCTION

When a person is placed in a leaderless group discussion he is in a position to display leadership, but group members vary in the extent to which they attempt to lead. According to Bass (1), the degree to which a person attempts to influence others is determined by many factors, such as his orientation, his self-esteem, esteem for other group members, and the degree to which he is attracted to the group. Bass also hypothesizes that future attempts to lead are influenced by an individual's past feedback concerning his success and effectiveness as a leader.

1. *Self-, Task, and Interaction Orientation*

Bass (2) devised the Orientation Inventory (ORI) to assess self-, interaction, and task orientation. The rationale for the three scales is derived from Bass' theory of leadership and interpersonal behavior (1). In one series of validation studies it was shown that *task-oriented* Ss were significantly more likely to volunteer in the absence of any extensive appeals than were interaction- or self-oriented Ss. *Self-oriented* Ss shifted to volunteers when offered pay for their time. After volunteering, *interaction-oriented* Ss were most prone to prefer a discussion over a problem to be solved alone, *self-oriented* Ss preferred working alone, while *task-oriented* Ss chose discussion and working alone equally as much.

2. *Esteem and Leadership*

Bass defines esteem as "the value of a member as a person, his perceived potential to bring about rewards, avoidance of punishment, reinforcement, goal attainment for the group regardless of the position he occupies" (1, p. 277).

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Moreno (8) hypothesized that the higher the esteem of a group member, the greater would be the volume of words elicited and accepted by the group. Slater (9) also found that popularity correlated .38 with the amount of time a group member spends talking. Again, Homans (7) has found that interaction is initiated by persons of "higher social rank." Bass (1) points out that persons with high esteem will be more likely to attempt leadership than will low esteem individuals.

3. *Group Attractiveness, Orientation Type, and Leadership*

Fouriezos, Hutt, and Guetzkow (4) found that when self-orientation was displayed in discussion groups, productivity was decreased and the group members were decreasingly satisfied with the group's interaction, decision, and leadership. Bass (2) found that the self-oriented group members tended to rate more favorable a group heterogeneous in orientation than they did one containing all high self-oriented members. The interaction-oriented group members, on the other hand, felt the groups containing only high interaction-oriented members were superior to those groups heterogeneous in orientation. The task-oriented members believed heterogeneous groups were the most adequate, and thus the most attractive (2).

4. *Purpose*

The purpose of the present study was to determine the effect of orientation type (self, task, and interaction) and type of feedback on group attractiveness, mutual esteem, and self-esteem.

B. METHOD

1. *Subjects*

The Ss consisted of 192 students enrolled in an introductory psychology course. The Ss were divided into 48 groups with four Ss in each group, and were segregated by sex. The groups were formed on the basis of the members' orientation and were homogeneous in orientation.

Incentive for volunteering consisted of points toward the S's final grade in the course. Each participant received three additional points and each member of the most effective group received 10 additional points.

2. *Procedures*

The groups were formed by administering the ORI, a test designed by Bass (2) to measure the type of orientation. It measures self-orientation, task

orientation, or interaction orientation. For the purpose of this study, a person was considered to be high in a particular orientation if he was in the top quarter on a particular scale and low on the other two. For example, if an *S* was in the top quarter on the self scale and below the top quarter on the task and interaction scales, he was placed in the high self group. *Ss* who were high on more than one scale were eliminated from this study.

The task consisted of nine city-ranking problems. Each problem consisted of five cities that were to be ranked according to population as determined by the 1960 census. For each list of cities there were four rankings: an initial private ranking (*X*), a group ranking (*G*), a final private ranking (*Y*), and a correct ranking (*R*).

Each member of the group was provided with feedback concerning his successful influence of the group decision and information concerning the effectiveness of the group in solving the group's problem. Information concerning the degree to which an individual had successfully influenced the group's decision was provided by ammeters on each *S*'s panel and scaled to show *least, little, more, or most* influence. This allowed *E* to feed back either personal failure in influencing the group decision or personal success in influencing the group decision. All members of a group received the same feedback concerning their success. The individual group member did not know what feedback was given to the other members of his group.

Feedback concerning the group's effectiveness in solving the problem was provided by *E*'s informing the group at the end of each trial how effective it had been. The group was informed as to the accuracy of the group by *E*'s publicly indicating whether its performance was *excellent, very good, average, poor, or bad*, as compared with similar groups of students. The group was told it was either effective in solving the group's problem or was ineffective in solving the problem.

A combination of the feedback conditions allowed for four treatment conditions: *public effectiveness and private success; public effectiveness and private failure; public ineffectiveness and private success; and public ineffectiveness and private failure*. Twelve groups were randomly assigned to each of the four conditions: four high self-oriented, four high interaction-oriented, and four task-oriented.

No feedback was given on the first two trials. The first feedback was given at the end of the third trial. The appropriate treatment was administered at the end of each of the last seven trials.

At the end of the second and the ninth trials, each *S* was given a rating sheet. He was instructed to rate to what extent he would want to be retested

with this group if he had to take the test again. This indicated the attractiveness of the group. The *S* was also asked to rate how much each member of the group, including himself, contributed to the effectiveness of the group. This was a measure of esteem.

C. RESULTS

1. Attraction

The rating of a group attraction was obtained by use of a five-point rating scale. The mean group-attraction scores before and after feedback were subjected to a double classification analysis of covariance.

The analysis of covariance of the effect of different types of orientations and treatment on the attractiveness of the groups is reported in Table 1.

TABLE 1
SIGNIFICANT *F*s OBTAINED IN ANALYZING THE COVARIANCE OF ATTRACTIVENESS,
GROUP ESTEEM, AND SELF-ESTEEM AS A FUNCTION OF
ORIENTATION AND FEEDBACK

| Source | <i>df</i> | Group attractiveness | Group esteem | Self- esteem |
|-----------------------------------|-----------|-------------------------|-----------------|-----------------|
| Between orientation | 2 | 3.36* | 4.02* | 10.83** |
| Among treatment | 3 | 18.36** | 20.77** | 90.60** |
| Orientation \times treatment | 6 | | | |
| Residual | 36 | | | |

* $p < .05$.

** $p < .01$.

The adjusted mean ratings before and after feedback are reported in Table 2.

The *F* ratio between the orientation main effect was significant beyond the 5 per cent level. This indicates that orientation types differ in the degree to which they are attracted to the group. The interaction-oriented group members were most attracted to the group before feedback, and the task-oriented members were least attracted. After feedback, the most change occurred with the task-oriented and self-oriented members. The interaction-oriented members did not shift as much as the other two orientation types.

It was also found that the feedback main effect was significant at the .001 level. With *successful-effective* feedback and *unsuccessful-effective* feedback, group attractiveness increased; while with *successful-ineffective* and *unsuccessful-ineffective* feedback, group attractiveness decreased. Thus it appears that individuals are attracted to groups that are effective regardless of their influence on its effectiveness, and they are not attracted to groups that are ineffective even though they are contributing to that state.

2. *Esteem for the Group*

The group esteem was the mean rating of the perceived worth to the group of all the group members with the exception of the rater. The analysis of covariance of the effect of different types of orientation and feedback on group esteem is reported in Table 1.

The *F* ratio between feedback main effect was significant beyond the .01

TABLE 2
ADMINISTERED MEAN RATINGS OF GROUP ATTRACTIVENESS, GROUP ESTEEM,
AND SELF-ESTEEM

| Orientation | Group attractiveness | Group esteem | Self- esteem |
|-----------------------------------|-------------------------|-----------------|-----------------|
| Successful-Effective feedback | | | |
| Self | 438 | 438 | 287 |
| Interaction | 437 | 437 | 382 |
| Task | 442 | 442 | 413 |
| Successful-Ineffective feedback | | | |
| Self | 316 | 316 | 269 |
| Interaction | 332 | 332 | 291 |
| Task | 366 | 366 | 282 |
| Unsuccessful-Effective feedback | | | |
| Self | 402 | 402 | 277 |
| Interaction | 409 | 409 | 257 |
| Task | 406 | 406 | 257 |
| Unsuccessful-Ineffective feedback | | | |
| Self | 312 | 312 | 274 |
| Interaction | 338 | 338 | 268 |
| Task | 380 | 380 | 223 |

level. As with attraction to the group, the group esteem increased when the members perceived the group as effective and decreased when they perceived the group to be ineffective.

The *F* ratio for the orientation main effect was significant at the .05 level. In general, the interaction-oriented group member esteemed the other group members higher than did the self-oriented or task-oriented members. The self-oriented member, after feedback, generally had the lowest opinion of the other members of the group. The adjusted mean ratings of the group esteem before and after feedback are reported in Table 2.

3. *Self-Esteem*

Self-esteem was the perceived self-worth of the individual to the group as evaluated by self-ratings. Table 1 shows the results of the analysis of covariance of the effect of orientation type and feedback on the self-esteem of the group member.

The feedback main effect was significant beyond the .01 level. It was found

that successful personal influence was the crucial variable in determining self-esteem. When the individual perceived himself as having been successful in influencing others, his self-esteem increased whether the group was effective or ineffective. If he was not successful in influencing others, his self-esteem decreased.

The between orientation main effect was significant beyond the .01 level. It was found that the self-oriented and interaction-oriented group members tended to rate themselves high in self-esteem, while the task-oriented group member tended to have a low self-esteem. The adjusted mean values are reported in Table 2.

D. DISCUSSION

Attraction to the group increased only when the group was effective. This is what one would expect according to Bass' definition of attraction. Bass (1) used the term "attractiveness" to indicate anticipated rewards. He pointed out that attractiveness to the group is dependent on the group's past effectiveness. Thus, one would expect the members in an ineffective group to withdraw because the group is no longer attractive. If one disregards the orientation of the Ss, the only Ss to maintain a consistent level of group-directed activity were the Ss receiving *effective* feedback [Frye (5)].

Bass (1) pointed out that a member will value himself to the extent that he has confidence in his capabilities to aid the group in solving its problem. Thus the degree to which he has been successful in influencing the other members of the group in making the correct decision will determine his self-esteem. The crucial feedback affecting self-esteem was successful influence. If the group member is successful in influencing the group decision, his self-esteem increases. These findings are in line with Stotland's (10) observation that self-esteem is reduced by failure.

Bass (1) had pictured the self-oriented S as being primarily concerned with personal gain. Recent studies (3, 5, 6) have all shown the self-oriented person to be a dreamer. He describes himself as he would like to be, an aggressive dynamic individual who esteems himself, but in group interaction he is less responsive when compared with task- and interaction-oriented Ss.

E. SUMMARY

The present study was designed to measure the effect of orientation and feedback on attractiveness, mutual esteem, and self-esteem. The Ss consisted of 192 students high in either self-, task, or interaction orientation as measured by the Orientation Inventory. The Ss were randomly assigned to 48 groups

with four Ss in each group. There were 16 high self, high interaction, and high task groups. Twelve groups—four high self-oriented, four high task-oriented, and four high interaction-oriented—were assigned to each of four feedback treatments.

The task consisted of nine city-ranking problems. The first two problems provided a base line. At the end of each of the last seven problems, the group members were given (a) feedback concerning the effectiveness of the group in solving the problem and (b) feedback indicating the success of the individual group member in influencing the group decision.

The findings indicate that group attraction and mutual esteem are a function of the group's effectiveness. Individuals are attracted to groups and esteem individuals who aid them in solving the task. Self-esteem is dependent on the degree of successful influence of the group member. If the group member is successful in influencing the group decision, his self-esteem is increased regardless of the effect of his influence.

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COGNITIVE DISSONANCE IN SUPPORTERS OF A LOSING CANDIDATE*¹

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A. INTRODUCTION

Festinger's theory of cognitive dissonance (1) is one of a family of cognitive balance theories that emphasize the tendency toward cognitive homeostasis (6).

Dissonance theory, moreover, makes rather clear statements concerning postchoice attitudes toward choice alternatives. An individual, says Festinger, tends to regard the chosen alternative with increased favor and to degrade the unchosen alternatives. This attitude shift reduces the tension that results from the fear of having chosen the subjectively "wrong" alternative.

An unusual application of the dissonance reduction effect is found in cases wherein the chosen alternative is shown to be objectively wrong. If the individual has made a strong commitment to his choice, and if undeniable evidence is presented that the choice was a mistake, then the theory predicts a strong increment in favorable attitude toward the chosen alternative. This occurs because disproof is dissonant with one's active commitment to the belief that the choice was right. A well-known example of this is found in Festinger, Riecken, and Schachter's book, *When Prophecy Fails* (3).

B. PROBLEM

The present study sought to investigate attitude changes in supporters of the losing candidates of the 1964 Presidential and California Senatorial elections. It was felt that these partisans, in their involvement and commitment toward their favorites, when faced with the fact of their losses, would exhibit dissonance-reducing postelection behavior.

Conceptually, it was hypothesized that supporters of a losing candidate would think more highly of that candidate after the election than before, in order to "justify" their having voted for a loser.

Six hypotheses proposed here are related to this general conception:

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H₁—Postelection Goldwater ratings will be more favorable than pre-election ratings, among Goldwater voters.

H₂—Postelection Salinger ratings will be more favorable than pre-election ratings, among Salinger voters.

H₃—The differences between pre-election Goldwater and Johnson ratings will increase after the elections, among Goldwater voters.

H₄—The difference between pre-election Salinger and Murphy ratings will increase after the election, among Salinger voters.

H₅—The most enthusiastic Goldwater voters will show the greatest increment in postelection Goldwater favoritism.

H₆—Goldwater and Salinger supporters who were voters will show more increment in postelection ratings of their favorite than will those ineligible to vote.

"Favorability" is operationalized by a semantic-differential scale as described below. H₅ cites "enthusiasm," which is indicated by the magnitude of the difference between pre-election Goldwater and Johnson ratings. H₁, H₂, H₅, and H₆ all follow from dissonance theory and its corollaries. H₃ and H₄ take as their measure of candidate support a difference score, assuming that one might support a candidate on the grounds of a positive attraction toward that man, or a negative feeling toward the opposition's offering.

It should be noted that these predictions differ from those of a similar study, by Stricker, of the 1960 Nixon-Kennedy election (5). Stricker felt that supporters of the losing candidate would tend to rate *both* candidates more favorably after the election than before. This prediction was based on the assumption that Nixon supporters would change their attitudes to conform to the results of the election. The predictions of the present study are based on the assumption that the election outcome would be interpreted by Goldwater and Salinger voters in such a way as to allow them to preserve their pre-election attitudes of both candidates.

C. METHOD

Two classes of night-school students, one psychology and one economics class, were asked to complete questionnaires on three separate occasions. The questionnaire required the S to rate candidates Goldwater, Johnson, Salinger, and Murphy. The rating scale was adapted from Osgood's seven-point semantic differential (4). It was felt that some of Osgood's scales of opposites might not apply to political candidates, so the same Ss were asked to rate 40 adjectives in terms of potency and evaluative meaning, one list of 20 adjectives being presented for each dimension. These ratings were carried out one month before

the completed scale was again presented to these Ss. Five pairs of discriminating opposites were chosen from these ratings: honest-dishonest, stable-unstable, generous-selfish, mighty-helpless, and humane-inhumane. These were added to three of Osgood's scales—strong-weak, hard-soft, and good-bad—to make a total of eight scales, four measuring evaluative connotations and four measuring potency.

The measure was first administered five days before the election. This form also asked the S's presidential and senatorial preferences and whether or not they intended to vote. Fifty-three Ss completed this questionnaire (Measure 1). The scales were again administered to the classes as they met, 48 hours after the election returns were public. Thirty-nine Ss returned this form (Measure 2). A third administration took place one month after the election. Thirty-five Ss were present at this time (Measure 3). Individuals ineligible to vote constituted about one-third of each sample.

D. RESULTS

The last-name initials of the candidates will be used in this discussion, subscripted to show whether Measure 1, 2, or 3 is being described.

The magnitude and direction of the attitude changes were indicated by the Wilcoxon matched-pairs signed ranks test. Medians for each measure are presented in Table 1. The possible range of these scores is from 8 (least favorable) to 56 (most favorable).

TABLE 1
MEDIAN FAVORABILITY RATINGS OF LOSING CANDIDATES BY THEIR SUPPORTERS

| Voters | Measure | | |
|------------------|---------|------|------|
| | 1 | 2 | 3 |
| Goldwater voters | | | |
| Goldwater rating | 47.0 | 44.0 | 44.0 |
| Johnson rating | 34.5 | 32.5 | 36.0 |
| G—J difference | 10.0 | 6.0 | 7.5 |
| Salinger voters | | | |
| Salinger rating | 43.3 | 38.0 | 35.5 |
| Murphy rating | 33.5 | 44.0 | 41.5 |
| S—M difference | 5.5 | —1.0 | —5 |

Inspection of Table 1 shows that H_1 , H_2 , H_3 , and H_4 were not confirmed. Supporters of losing candidates tended, on the average, to downgrade the loser and upgrade the winner. The extent of this effect is shown in Table 2, the Wilcoxon test comparisons between the sets of data represented in Table 1. Probability levels of .05 and less, based on a two-tailed test, are reported.

TABLE 2
CHANGES OVER TIME IN THE FAVORABILITY RATINGS OF
PRESIDENTIAL AND SENATORIAL CANDIDATES

| Goldwater voters | | | Salinger voters | | |
|---------------------|----|-------|---------------------|----|-------|
| Comparison | N | p | Comparison | N | p |
| $G_1 > G_2$ | 16 | .02 | $S_1 > S_2$ | 14 | n. s. |
| $G_1 > G_3$ | 13 | .05 | $S_1 > S_3$ | 14 | .01 |
| $G_2 < G_3$ | 8 | n. s. | $S_2 < S_3$ | 13 | n. s. |
| $J_1 > J_2$ | 17 | n. s. | $M_1 < M_2$ | 13 | n. s. |
| $J_1 > J_3$ | 15 | n. s. | $M_1 > M_3$ | 12 | n. s. |
| $J_2 > J_3$ | 12 | n. s. | $M_2 < M_3$ | 12 | n. s. |
| $G_1-J_1 > G_2-J_2$ | 18 | .05 | $S_1-M_1 > S_2-M_2$ | 13 | .01 |
| $G_1-J_1 > G_3-J_3$ | 16 | n. s. | $S_1-M_1 > S_3-M_3$ | 13 | .01 |
| $G_2-J_2 < G_3-J_3$ | 12 | n. s. | $S_2-M_2 > S_3-M_3$ | 12 | n. s. |

Note: G = Goldwater, J = Johnson, S = Salinger, and M = Murphy.

The striking feature of the data is that there are significant declines over time in the loser's rating by those who voted for him. Festinger anticipates this, but postulates the author's hypothesized rise before decline becomes cognitively permissible. Goldwater favoritism, however, dropped almost immediately, while Salinger favoritism declined after a month. The difference comparisons also reflect this, since there are no significant changes in attitudes toward the winners. H_1 , H_2 , H_3 , and H_4 , therefore, should be rejected.

These results, it should be noted, directly oppose those obtained by Stricker (5). Stricker, however, took as his measure the number of people who increased their favorability on a semantic-differential instrument, employing a chi square test for significance. This procedure can be criticized on the grounds that it discarded ordinal-scale information and invited problems in deciding upon a reasonable scheme of expected frequencies.

The basic results of the present study are not affected by the application of Stricker's criteria, although the data show increased significance using the chi square approach.

H_5 involved a Spearman's rho between G_1-J_1 and G_2-J_2 . The result is a rho of $-.07$. A similar measure of Salinger voters showed a rho equal to $.28$. Both are not significant at the $.05$ level. This result is interpreted to indicate that there is no relation between a voter's pre- and postelection magnitude of preference for a losing candidate if he voted for that candidate. H_5 is, therefore, unacceptable. Voter *vs.* nonvoter comparisons show that these two groups behaved essentially the same, as indicated by the Wald-Wolfowitz runs test. Therefore, H_6 should not be accepted.

E. DISCUSSION

This section might well begin by reporting data not directly related to the hypotheses and therefore not included up to this point. Statistical treatment of the ratings of Ss who voted for winners tells us that there were no significant changes in their attitudes toward either the winner or the loser. One might reason that, since their choices won, Johnson and Murphy voters had no need to reconcile belief and fact—the electorate had dissolved the conflict.

As for supporters of the losing candidates, we have seen that dissonance reduction may not have taken place in the predicted manner. There is still some doubt implied here, as Festinger indicates that opportune times for measuring tension-reducing attitude shifts may be limited to a matter of minutes or a very few hours (2). The time interval of 48 hours may well have been too late to measure the predicted effects, if they existed.

It is meaningful, however, to notice that attitude changes always involved the chosen, losing candidate instead of the unchosen winner. This lends some support to the notion that any dissonance was reduced by sacrificing the prior belief that Goldwater was the better man to conform to the results of the election. Such a desire to conform would call for a decrement in Goldwater favorability. Dissonance theory states that this is unlikely, however, because of the personal investment in prior beliefs of this sort.

The strength of this personal commitment is reflected in the strength of preference for the chosen candidate before the election. The Wilcoxon test indicates a significance far beyond the .005 level, one-tailed, for all comparisons of this sort. Prediction from dissonance theory has as one of its prerequisites this strong commitment.

Another requisite is that the individual be able to find social support for his desire to continue favoring the loser. In this election study, the very basis for disproof came in the form of repudiation of widespread social support. For Goldwater voters, who had no tightly knit clan to provide social reinforcements, as did Mrs. Keech and her Lake City group (3), the strong implications of the election results may have dissolved any hopes of a "victorious defeat," and with them, the bases for dissonance reduction in the predicted form.

The time factor was discussed previously in this section in terms of delay in measurement after disproof of belief. Disproof itself is a rather indefinite term in this context because, in the first place, an election does not necessarily or conclusively "prove" which is the better man, and, in the second place, the election returns came in over a period of several hours. If we think of dis-

sonance reduction as taking a certain amount of time before a balanced state is reached, we might logically suppose that the sooner one realized that a dissonant state was imminent, the sooner one could reach a balanced state. It would be to one's homeostatic advantage to try to prepare for possible dissonance-provoking situations. In this light, it might be profitable to invoke a principle of *predecision* dissonance reduction. If a "wrong" choice seems likely to occur, the individual may carry through with that choice on rationalistic or ideological grounds while, at the same time, making cognitive preparations for defeat. It would not be an unreasonable interpolation to suppose that Goldwater voters exhibited this type of behavior. The dissonant cognitions in this case, then, are having made a choice and suspecting, even predicting, that this choice was wrong. After the choice was proved wrong, a reasonable method of reducing dissonance might be to degrade the chosen alternative, thereby justifying the premonitions of disaster.

In principle, at least, it might be possible to reduce the dissonance before a decision is ever made, rendering it extremely difficult to measure. If we suppose that *predecision* dissonance reduction is possible, we might be able to predict the results obtained in this experiment. An exposition, such as that given above, might well be concluded with the caveat that such reconciliations of data with theory, while they may lead to fruitful research and conceptual exploration, usually have the net effect of reducing the predictive and explanatory value of the theory. Such flights, therefore, should be pursued with the same caution with which they are proposed.

It is suggested that further study of elections and attitude changes include some assessment of the *S*'s involvement in the campaign and active commitment to his choice. Some indication of the *S*'s social surroundings at the time of receipt of election returns would be helpful, as predictions from dissonance theory appear to differ with changing conditions of social support.

F. SUMMARY

Adult night-school students indicated their attitudes toward presidential and California senatorial candidates in the 1964 elections. Measures were taken five days before the elections, two days after the elections, and one month after the elections. Festinger's dissonance theory predicts that pre-election attitudes among supporters of losing candidates become more favorable in postelection ratings. Results showed significant changes in the opposite direction. Lack of social support, measurement timing, and *predecision* dissonance reduction are seen to bear on these results.

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INTERPERSONAL ANXIETY AS A FUNCTION OF SOCIAL CLASS*¹

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A. INTRODUCTION

Anxiety is not a unidimensional trait residing within the individual, but is a complex behavioral event that is influenced by situational, personality, and mode of response factors, and their interactions (6, 7, 8, 14). Endler *et al.* (7), using the S-R Inventory of Anxiousness (S-R), found three situational anxiety factors (interpersonal, inanimate, and ambiguous), and three mode of response anxiety factors (distress, exhilaration, and autonomic), providing some empirical evidence for the multidimensional nature and specificity of anxiety.

The present study is concerned primarily with the situational interpersonal anxiety factor and secondarily with the inanimate or physical danger anxiety factor. Specifically, this paper deals with the relationship between social class and anxiety, and attempts to contribute to the construct validity of the S-R Inventory of Anxiousness (7).

With respect to the construct validation of the S-R Inventory, D'Zurilla (5) found that verbal participation in the classroom was negatively related to interpersonal anxiety (primarily "distress") on the S-R, and Haywood and Dobbs (9) found that low socioeconomic Ss had higher scores on the avoidance factor of the S-R than did Ss of a higher socioeconomic class.

The present study hypothesized that social class was inversely related to interpersonal anxiety: i.e., the lower the social class the greater the reported interpersonal anxiety. The rationale for this hypothesis is as follows. A number of empirical studies (3, 10, 15) have indicated the importance of social class structure in relation to the socialization of the child, and have discussed class differences in achievement strivings and the development of internal controls. The middle class (MC) places greater emphasis on accomplishment and imposes this demand earlier than does the lower class (LC). The techniques of discipline preferred by MC parents are more likely than the techniques preferred by LC parents to induce the development of internalized values and

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controls. As a result, MC children manifest more achievement strivings and are more impervious to immediate situational demands than are LC children (4). LC children develop few internal controls and do not readily embrace the MC achievement value system which states that, given the willingness to work hard, plan, and make the proper sacrifices, an individual should be able to manipulate his environment so as to ensure eventual success (16).

Since the schools meet established groups of individuals from both social classes under similar objective conditions, they provide a good cultural setting for an investigation of the effects of class differences (1). Student-teacher and student-student relationships contrast sharply with the "informal" modes of interaction with little emphasis on participation in formal organizations that predominate in the LC subculture (11). Home-school social differences, for the LC, provide for experienced psychological difficulties in adjusting to the student role. The school emphasizes the achievement values of the MC, but the LC student is only lately and not uniformly socialized in the MC value pattern. Therefore, the LC student should have greater interpersonal difficulty than the MC student in adjusting to the achievement value system of the school. The MC individual is more "at home" and is more confident than the LC individual in the interpersonal stress situation of the school. The LC individual is less well prepared to meet the challenge. Therefore, the threat to interpersonal status should appear more critical to the LC student who is being judged by MC values and induce more anxiety than it would for the MC student. Furthermore, the school system encourages achievement not only in terms of school performance but also in terms of preparation for a vocation or an occupation. LC children should be more anxious with respect to interpersonal situations related to occupation or job than MC children. Therefore, the specific interpersonal anxiety situation chosen for this study was this: "You are going into an interview for a very important job." It was hypothesized that this situation would be more threatening to the interpersonal status of LC than MC students. It was assumed that this relationship would be more stable and meaningful for males than for females.

Although it was hypothesized that LC Ss would manifest more interpersonal anxiety than would MC Ss, this need not imply that in general one group is more anxious than the other. For example, there does not, at the moment, appear to be any rationale for assuming a relationship between social class and inanimate anxiety (fear of physical danger). If it can be shown that there are class differences that are specific to interpersonal anxiety but that these differences do not appear for inanimate anxiety, this would lend empirical support to the theory and validity of the S-R Inventory of Anxiousness.

B. METHOD

1. Subjects

Ss for this experiment were 26 male students and 18 female students in the 1962-63 freshman class at York University in Toronto.

2. Procedure

Upon entering the university, all first year students were administered a battery of tests including the S-R Inventory of Anxiousness (7); a biographical inventory from which the S's social class could be derived; and the School and College Ability Tests (SCAT), a measure of college aptitude.

The social class position of each S was defined by the position of each S's father on the occupational class rating scale of Blishen (2). This seven-class scale (where 1 is the highest social class and 7 the lowest) is based on father's income and years of schooling and has a correlation of 0.94 with the rating of occupational prestige in the National Opinion Research Center study in the United States.

The format of the S-R Inventory of Anxiousness has its origin in a logical analysis of the meaning of trait ratings (12). This format samples separately modes of response, situations, and persons. The form of the S-R Inventory used in this study (Form 1-X-62) obtained a sample of 10 modes of response in each of a sample of 18 situations for each S. Each mode of response is reported for each situation; thus the total number of items is 180. This form of the Inventory also employs a five-step scale for intensity of response ranging from "none" to "very much." S is asked to report the intensity of his response (physiological reaction, feeling, direction of response, or effect on action in progress) for each situation.

Endler *et al.* (7) found three situational anxiety factors (interpersonal, inanimate, and ambiguous). For the present study the scores on two situations were used, one interpersonal and one inanimate. The interpersonal situation—"You are going into an interview for a very important job"—was selected because (a) it had the highest factor loading (.85) on the interpersonal status threatened factor, and (b) in terms of face validity it was most relevant to social class position. The inanimate (or physical danger) situation—"You are crawling along a ledge high on a mountain side"—was selected because it had the highest factor loading (.76) on the inanimate personal danger factor.

The 26 male Ss were selected in the following manner. The nine Ss from the lowest social classes were matched on aptitude via the SCAT with nine Ss from the highest social classes. Then eight students from the middle range

on the social class index were matched in pairs on the SCAT.² The female *Ss* were selected in a similar fashion. The matching was done in order to partial out the effects of aptitude on social class and anxiety, since Grooms and Endler (8) had found a negative correlation between anxiety and aptitude, and Haywood and Dobbs (9) had found that low socioeconomic *Ss* were characterized by lower scores on a vocabulary test.

C. RESULTS

The Spearman rho rank order correlations for males and females between social class and both interpersonal and inanimate anxiety situations appear in Table 1.

TABLE 1
RANK ORDER CORRELATIONS (RHO) BETWEEN
SOCIAL CLASS AND S-R ANXIETY FOR MALES AND FEMALES

| Variable | Males (<i>N</i> = 26) | Females (<i>N</i> = 18) |
|--|---------------------------|-----------------------------|
| Social class <i>vs.</i> interpersonal anxiety | -.46* | -.30 |
| Social class <i>vs.</i> inanimate danger anxiety | -.02 | -.18 |

* $p < .02$.

The correlation between social class and interpersonal anxiety for males was $-.46^3$ ($p < .02$), which was the only significant correlation.

For the males only, *t*-tests were computed comparing the interpersonal and inanimate anxiety means ($N = 9$ for each group) for the LC and MC groups.⁴ The interpersonal anxiety mean for the LC group (27.6) was significantly higher ($t = 2.93$, $p < .05$) than the interpersonal anxiety mean for the MC group (20.5). For the inanimate or personal danger situation, the LC group mean (26.5) was not significantly greater than the MC group mean (24.2).

² Since all the *Ss* were college students they were fairly homogeneous with respect to social class. There was only one student in the lowest class, 7, and no students in the highest class, 1. For this study, MC background was measured by grouping classes 2 and 3 on the Blishen Scale, while LC background consisted of classes 5, 6, and 7. From the whole freshman class only nine males met the LC criterion. In order to increase the size of the sample for correlational purposes, eight additional male *Ss* from classes 3 and 4 were added. For the purposes of the *t*-tests, the LC group included the nine students from classes 5, 6, and 7, and the MC group included nine *Ss* from classes 2 and 3.

³ The correlation is negative because the social class scores were rank ordered from highest score to lowest score (i.e., lowest to highest social class) and the anxiety scores were rank ordered from lowest to highest.

⁴ See Footnote 2 for the composition of the LC and MC groups. Note that for the *t*-test analysis the sample is very small: i.e., there are only nine *Ss* for each group. No *t*-test analysis was attempted for the female sample, which was even smaller.

D. DISCUSSION

The results, while based on a small sample, do indicate a negative relationship between social class and interpersonal anxiety for males. That is, the lower the social class from which the male student comes, the more anxious he is in the interpersonal situation. Furthermore, there is also tentative evidence that the lower class (LC) males are more anxious in the interpersonal situation than (MC) males. These results do not hold for females, nor are there class differences with respect to inanimate or personal danger anxiety for either sex. The present results are congruent with the findings of Haywood and Dobbs (9) that low socioeconomic Ss are characterized by higher scores on manifest anxiety than are high socioeconomic Ss.

What are the implications of the results for the male Ss? For the males there was a significant negative correlation (-0.46) between social class and interpersonal anxiety, and no relationship between social class and inanimate anxiety (see Table 1). These results imply that the anxiety experienced is not just a personality factor: i.e., that S's anxiety does not generalize across all potentially anxiety provoking situations. The low correlation (-0.02) between social class and inanimate anxiety for the males indicates that there is a situational factor to the relationship between the student's experience of anxiety and social class. Furthermore, LC males experience more interpersonal anxiety than do MC males, but there are no class differences with respect to inanimate or physical danger anxiety.

The significant relationship between social class and interpersonal anxiety implies that situations, such as "You are going into an interview for a very important job," are more threatening to the interpersonal status of an LC person than a MC person. This particular situation, like most of the interpersonal situations on the S-R Inventory, is one in which an individual is being judged by others, particularly by others in the MC. According to Douvan (4), MC children manifest more school achievement strivings and are more impervious to immediate situational demands than are LC children. It is possible that the MC Ss are adapted to being judged by others and therefore find *these types* of interpersonal situations less threatening than do LC children. Furthermore, the social class index used in this study is based on father's occupation. Since the LC children come from families where the father has a low status occupation, a situation, such as an interview for a very important job, which would probably improve the Ss' status, is more significant and potentially more threatening for a LC S than for a MC. An encounter with the inanimate or personal danger situation—"You are crawling along a ledge high on a mountain side"—is equally probable or improbable

for Ss from both classes. Both classes are exposed to fairly similar physical dangers. However, the MC Ss are more frequently than LC Ss exposed to interpersonal situations where their achievement and status are being judged on educational and occupational criteria. These situations are not as novel for MC Ss as for LC Ss, and therefore they become less anxious than LC Ss in interpersonal situations. Hunt (13) has pointed out that "incongruity" or the discrepancy between sensory input and information already stored or coded in the brain is essential for arousal. The greater incongruity for LC Ss in these interpersonal situations as compared to MC Ss leads to greater arousal: i.e., greater anxiety.

For the females there were no significant correlations between social class and either anxiety situation. In terms of the rationale used for the male Ss, there is no reason to expect a significant relationship between social class and inanimate anxiety. With respect to social class and interpersonal anxiety ($r = -.30$), there are two possible explanations: (a) Occupational status or gaining status via an important job is not as important for females as it is for males. In our society a male earns his social status primarily by his occupation, a female usually by the occupation of her husband. Therefore, the relationship between social class in terms of father's occupation and interpersonal anxiety is not as stable nor meaningful for females as it is for males. (b) The size of the female sample was very small ($N = 18$), and this would partially preclude obtaining significant results.

In general the authors can tentatively conclude that the LC student is less confident in an interpersonal stress situation, has more at stake, and is less well prepared to meet the challenge than is the MC student. A threat to interpersonal status appears more critical to the LC male student and causes more anxiety than it would for the MC male student.

By indicating class differences with respect to interpersonal anxiety for males, and by indicating a differential relationship for interpersonal and inanimate anxiety, this study contributes to the construct validity of the S-R Inventory of Anxiousness.

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A DEMONSTRATION BY THE HSPQ OF THE
NATURE OF THE PERSONALITY CHANGES PRODUCED
BY INSTITUTIONALIZATION OF DELINQUENTS*

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A. INTRODUCTION TO RESEARCH PROBLEMS

Juvenile delinquency continues to be one of the leading mental health problems facing the nation today, and indeed there is mounting evidence that this proliferation of antisocial behavior is not confined to America alone. Many European and even Asian countries are beginning to recognize that the problem of delinquency is increasing disturbingly and that most existing facilities and techniques for its treatment are vastly inadequate, as evidenced by mounting delinquency rates that far exceed population increases.³

As in any multivariate problem, there is a tendency for fashions of explanation to cycle over the various contributors, overemphasizing each in turn;⁴ but the specification equation (multiple correlation based on factor analysis) approach used here is capable of retaining perspective. The evidence of professional literature seems to point overwhelmingly to a theory of delinquency that recognizes multiple and complex causation. This being so, it seems safe to predict that any approach that fails to recognize multiple causation and

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² John Pierce studied at Green Hill School during the summer of 1964 under the sponsorship of the Western Interstate Commission on Higher Education.

³ For example (13), consider the reported increase of court referrals of 114 per cent for juvenile delinquency in Washington for the period from 1955 to 1962.

⁴ For example, the dramatic success of epidemiological methods used in the twentieth century to combat disease has ushered in within one lifetime an era virtually free of bacterial pneumonia, tuberculosis, poliomyelitis, and other wholesale plagues upon mankind. Also, at the same time, research showed that other diseases were caused by nutritional deficiencies and could be literally eradicated by correction of such deficiencies. It was logically reasoned that such successful methods provided a made-to-order model for the study of delinquency. What was needed was merely to isolate the aetiologic specific and attack it through therapeutic intervention. Thus many delinquency prevention projects have begun, each with an *a priori* hypothesis concerning the aetiologic agent, together with programs designed to control that aetiologic variable.

fails to study the problem by multivariate methods is destined to fall short of its mark.

Among the causative influences at work, few might be expected to have greater predictive and explanatory power than measures of the personality and motivation of the delinquent individual. Only in the last decade, however, have measures been developed in this area that are satisfactory to the research psychologist and meaningful in general personality theory. These are the factor analyzed scales, as in the High School Personality Questionnaire, HSPQ (3), the Child Personality Questionnaire, CPQ (19), and the Motivation Analysis Test (7), each based on more than a decade of basic research prior to its publication. Their use in the last five years has produced a well integrated body of significant findings on child delinquency (16), neurosis (5), homosexuality (6), psychosis, etc., where previously the various *ad hoc* personality scales had failed to replicate any significant findings. The present report will briefly indicate some of these diagnostic findings, and break new ground in asking if such tests are sensitive enough also to throw light on personality changes in delinquents under treatment.

B. RECENT EVIDENCE THAT TREATMENT AIMS MAY BE INCORRECT

Before proceeding with the experiment and its findings, let us focus on the practical issues in treatment that it is designed to answer. Measures of recidivism (i.e., treatment failure) in the United States, while probably not well enough defined and standardized to make valid comparisons between delinquency treatment agencies, do strongly suggest that the problem of delinquency is being handled more by outworn clinical theories than by the theories arising from new quantitative experimental approaches.

It was recently reported (14) that the recidivism rates in the United States ranged from 20 per cent to 80 per cent. The ink was hardly dry on that report when, by personal communication,⁵ the authors learned that the upper limit of that range had been extended to 90 per cent. Furthermore, 32 per cent of the inmates of a typical institution of its kind—the Washington Adult Correction facilities—are recidivists from juvenile rehabilitation facilities (21).

Before concentrating on the question of what methods should be used to treat delinquents, let us make a brief review of the recent history of practice in training schools that will help us to focus on the problem as it stands at this time. World War II, a turning point in the history of many movements, appears also to have made its impact felt in this field. As if to attempt to understand its own madness, the world focused its attention at this time upon

⁵ Personal communication from R. F. Kelly, 1964.

mental health. The professional literature expanded in geometric proportions and mental health workers were trained in unprecedented numbers. Psychological terminology had now become household parlance. But man also at this time began to reproduce himself at a rate unequaled in history. Both of these influences began to be felt in the field of delinquency by the midpoint of the century. Training schools, which up to that time had viewed their charges as merely bad boys in need of tighter discipline, could no longer ignore the consistently repeated statement from behavioral scientists that behavior is caused. A new treatment model was needed and it was needed quickly because already the population explosion was being felt around the world. With the writings of Eichorn serving as a guideline, the psychoanalytic paradigm was readily adopted as the guiding philosophy of progressive agencies (11).

Sheldon (20), however, had already expressed his concern over the readiness of the sophisticated delinquent to accept the interpretations of psychoanalysis as a ready-made and highly systematized set of excuses to explain away and justify his deviant, antisocial behavior. Sheldon further implied that guilt, concern, and anxiety resulting from the delinquent's acting out are essential to his rehabilitation. He observed that even in the late 1930's delinquents could explain their behavior in psychoanalytic terms and discuss the appropriate psychoanalytic constructs with the precision of a boy reciting the catechism. Sheldon's concern seems, however, to have gone almost unheeded and to this day the majority of those working with delinquents have superimposed a treatment model designed for neurotics onto the problems of delinquency, whether it fits or not. No doubt, to the extent that the delinquent is neurotic, the model works. Pierson and Kelly (17), however, presented some rather convincing evidence that neuroticism and delinquency are not the same thing, particularly with regard to anxiety. They found the entire delinquent population of one state (Washington) to be most significantly *below* average on anxiety. Evidently concurrently, Glasser (12), a psychiatrist, reached a similar conclusion based on his clinical experience and advocated a system of psychotherapy that stressed the individual's responsibility for his behavior and eschewed "classical" ego-supportive and anxiety reduction techniques. It has even been suggested (17) that such techniques reinforce the existing pathology.

This sketch of the recent history of delinquency, by way of summary, shows then a sudden departure following World War II from the moralistic, punitive philosophy prevalent for centuries to a more permissive, causation-oriented approach based primarily upon psychoanalysis. It could be speculated that the pendulum is now about to swing back, but it is with much hesitancy and indecision that it does so. The time would appear ripe and indeed the need urgent

for a systematic reappraisal of existing research findings by more penetrating personality and motivation measuring instruments in the quest for a more precise and productive theory of delinquency and its treatment.

This report deals with a method of delinquency treatment that has included instruments of measurement to evaluate its effectiveness. These instruments as indicated above were developed around the structural viewpoint in personality measurement (1, 2, 4). A comprehensive discussion of the applied use of this theory of personality is in press and will be available soon to practitioners in school, clinic and industry (7). The HSPQ and CPQ mentioned above are now being supplemented by the Early School Personality Questionnaire (ESPQ) by Professor R. Coan (9), and the Pre-School Personality Questionnaire (PSPQ) by Professor R. Dreger (10), so that it becomes possible to obtain practical assessment of personality for age levels ranging from 5 to adulthood. Essentially the same factors of personality are measured throughout the life span of the individual, except those that are peculiar to one age level (e.g., radicalism *versus* conservatism is peculiar to adults). For the present study, the HSPQ was selected because of its applicability to the age range of the subjects employed in the study.

C. RESEARCH DESIGN

The subjects were 123 males, aged 14 to 18, committed by the juvenile courts of Washington as delinquent and assigned to Green Hill School. Their assignment to that agency indicates that a review board considered them to be, compared with others considered by the board, older and more aggressively delinquently identified, and thus requiring the greater structural security of an institution staffed and equipped to deal with more serious acting out. The boys were committed for a variety of offenses but most had committed car theft, burglary, or theft. The subjects were committed during the years of 1962 and 1963.

The HSPQ is published in two 140 item questionnaires, labeled Form A and Form B. The two forms have been shown to be equivalent (3). Form A was administered during the first week of residence. Form B was administered during the last week of residence. All subjects were in residence for seven to eight months. All but one of the cottages where the boys lived were 16-boy cottages. Twenty-three boys attended school all day. Ninety boys attended school one-half day and were assigned either to a vocational training program or a work assignment in the institutional industry. Ten boys worked all day in industrial assignments. All received group psychotherapy. Scheduled recreational and athletic activities were provided and the boys participated in cottage groups. The academic program was arranged in such a way that the

boys could begin at a level that would insure success and were permitted to progress at their own pace. Developmental reading was stressed because earlier research showed that the population from which this sample was extracted averaged two-year retardation (18). The aims of this academic program have been described in detail elsewhere (15, 18), but in general the program aims to give the boy an opportunity to catch up to his grade level, to teach him the fundamentals he missed in public school, and to provide an environment in which success and recognition promptly reinforce achievement. The professional staff of the program served as consultants to the cottage counselors and also provided individual attention when needed. Such counselling was of a directive, problem-oriented nature. Unacceptable behavior was reinforced by prompt isolation from the group, which could range from 24 hours to as much as a week or more. Decision to return the boy to the group was made by a staff committee. The group therapy sessions dealt primarily with group living problems and with individuals' problems of living with the group. Most interpretations of behavior were done by the boys themselves. The function of the therapist was to maintain balance and order in the group and to facilitate communication.

Forty-three boys not included in the study were assigned to the maximum security cottage because they were considered to be security risks or were unable to adjust to the less structured "open program." Form A of the HSPQ was administered the first week in this cottage. The boys averaged two months in this cottage. Just before release they were administered Form B.

After a period of seven or eight months, depending on the boy's progress, he appeared before a review board consisting of clinical and administrative personnel. At this time a decision was made whether to parole him or continue his program.

Means and standard deviations were computed for all 14 factors of the HSPQ Form A and for Form B, and *t* ratios were computed. Any having a significance beyond *p* less than .05 are shown in Table 1. All four exceed *p* =

TABLE 1
CHANGES IN HSPQ PERSONALITY FACTORS IN DELINQUENT GROUP UNDER TREATMENT
(*N* = 123)

| Factor | Form A Score, stens | Form B Score, stens | Change | <i>t</i> ratio | <i>p</i> |
|--------|------------------------|------------------------|--------|----------------|----------|
| E | 6.14 | 5.36 | -0.78 | 3.04 | .01 |
| G | 4.68 | 6.34 | +1.66 | 6.46 | .001 |
| I | 4.31 | 5.81 | +1.50 | 5.84 | .001 |
| Q3 | 4.31 | 5.22 | +0.91 | 3.54 | .001 |

Note: E = Submissiveness versus Dominance, G = Superego Strength, I = Harria versus Premisia, and Q3 = Self-Sentiment Formation.

.01. For comparison, and to show that this effect is not merely anything due to retesting as such, the results are presented in Table 2 for a contrast situation in which 97 youths (Air Force) were retested on the HSPQ with no intervening treatment, the interval being only a week.

TABLE 2
CHANGES IN HSPQ PERSONALITY FACTORS IN UNTREATED AIR FORCE MEN
($N = 97$)

| HSPQ factor | M_d | t | Significance |
|----------------|---------|----------|--------------|
| A | + .0309 | + .1139 | n.s. |
| B | - .1134 | - 1.1193 | n.s. |
| C | + .2474 | + .6122 | n.s. |
| D | - .1237 | - .4391 | n.s. |
| E | + .1134 | + .3790 | n.s. |
| F | + .3196 | + .9913 | n.s. |
| G | + .0825 | + .2444 | n.s. |
| H | - .0412 | - .9238 | n.s. |
| I | - .1856 | - .6402 | n.s. |
| J | - .0309 | - .1502 | n.s. |
| O | - .1753 | - .5701 | n.s. |
| Q ₂ | + .2887 | + .8019 | n.s. |
| Q ₃ | + .1856 | + .4821 | n.s. |
| Q ₄ | - .0619 | - .2605 | n.s. |

D. ANALYSIS OF RESULTS

The pre- and posttreatment means of four factors—E, G, I, and Q3—were found to differ very significantly in this sample at Green Hill School. These will be discussed individually.

1. *Factor E: Submissiveness Versus Dominance*

This is a familiar and well defined factor found in humans and animals alike. At its positive pole (E+, Dominance) it can be described as follows: aggressive, assertive, hostile, rebellious, and tough. Far from being all "bad," the mode of expression will depend on other personality factors as well as situational considerations (3). While it has been found to be associated with good performance in sports, originality of research (when associated with intelligence) (4), and independence in thought, its expression can also take the form of antisocial behavior. For example, it has been found to be abnormally high in clinically judged psychopaths (4). It has also been found to be high in several studies of juvenile delinquents (3).

Table 1 shows that E Factor has been reduced very significantly. At its negative pole, E Factor (E—, Submissive) is described as follows: submissive, dependent, kindly, conventional, and conforming. On the other hand, unduly low E Factor has been found to be one of several factors that make up the syndrome of neuroticism (4). Considering the clinical criterion associations found with E Factor at both poles, it would seem reasonable to presume that the healthiest E Factor score should be *entre les deux*, or not significantly different from the mean, and that therapy with delinquents and neurotics should be pursued in these opposite directions.

2. Factor G: Superego Strength

This factor seems to describe those characteristics which Freud called the superego—that which drives the ego and restrains the id. In more operational terms, G Factor at its positive pole depicts a regard for moral standards. High G Factor is associated with increased school achievement, leadership potential, and occupational success in later life (3). The person high in G Factor views himself as correct in, and a guardian of, manners and morals; persevering, planful, able to concentrate, cautious in thinking before he speaks, and preferring efficient people to other companions. Persons low on this factor lack acceptance of group moral standards and are described as undependable, frivolous, and impatient, and they disregard their obligations to others. Psychopaths score conspicuously low on this factor and several studies of delinquents show them to be low as well (3).

Table 1 reveals that G Factor has been raised very significantly and in fact has changed more than any of the other factors. The significance of this change will be discussed below.

3. Factor I: Harria Versus Premsia

This factor appears to be close to the "tender *versus* tough" mindedness originally conceived by William James. Its exact description, however, has necessitated the creation of the terms "harria and premsia." Premsia (I+), an abbreviation for protected emotional sensitivity, describes an individual who is demanding, subjective, artistically fastidious, and acts on sensitive intuition. The Harria (I—) individual, on the other hand, is tough, expects little, is hard to the point of cynicism, and is unaffected by "fancies." Intuition plays no part in harria, only hard, cold facts. It has been speculated that I Factor is determined almost completely environmental, varying from family to family: that is, from atmospheres of overprotectiveness to those of tough

neglect. Pierson and Kelly (17) found a statewide population of delinquents most significantly low in I Factor and concluded that this reflected the exaggerated masculinity or toughness characteristic of the delinquent boy.

Following the institutional treatment described, this sample of boys changed very significantly in the direction of increased emotional sensitivity (I+).

4. *Factor Q3: Self-Sentiment Formation*

If any single personality factor could be nominated as the most important contributor to personality integration, it would have to be Q3. It has been identified (3) with the self-sentiment: i.e., with the integration of dynamic attitudes around the preservation of a socially acceptable self-concept. The "Q" designation indicates that the factor has been established only in questionnaire responses, being elusive in rating studies. This is no doubt because the factor expresses an attitude about the "self," expressing the degree to which the individual has incorporated an "ego-ideal" that governs his behavior (Q3+). Persons high on Factor Q3 show socially approved character responses, self control, foresight, and conscientiousness. HSPQ norms for Washington delinquents (8) reveal significantly low scores on Q3.

In the present sample, Factor Q3 has been very significantly raised.

For the boys assigned to the maximum security cottage, only one factor changed significantly, Factor Q4. Factor Q4 is ergic tension. It is a component of the second-order factor of anxiety and represents the level of undischarged total drive (3). This change brings experimental support to the common sense expectation that confinement raises the level of drive frustration.

As a means of measuring what is proposed to be the delinquent's socialization response, the following formula is offered and is labeled the Index of Socialization (I_{soc}):

$$I_{soc} = ((E_1 - E_2) t_e) + ((G_2 - G_1) t_g) + ((I_2 - I_1) t_i) + ((Q3_2 - Q3_1) t_{Q3}) / k,$$

where E_1 equals the measurement in stens of the subject's pretreatment E Factor, and E_2 equals the measurement in stens of the subject's posttreatment E Factor, and t_e equals the t ratio for pre- and posttreatment means of E Factor, and k equals the number of Factors in the equation, or four.

The above equation as written would be acceptable (with slight modification) to computers using the Fortran language and is proposed as a tentative tool to measure amelioration of delinquent boys. I_{soc} will range from -42.48 to +42.48, with zero representing no change. This equation could be refined

for greater precision by accounting for the correlations among factors, but among these particular factors they are negligible (4).

E. SUMMARY AND DISCUSSION

Factors G and Q3 at their positive pole probably together describe what is popularly called "character." These factors together predict the individual's capacity for socially responsible behavior. With other factors held constant, they describe a person's capacity to assume a dependable, mature, and responsible place in society. It would appear, therefore, to be of signal importance that both G and Q3 have been raised to a significant degree. We even diagnose delinquents as character disorders, so it would certainly seem to be a sign of response to treatment to change these factors significantly.

The desirable change in E Factor hardly needs elaboration. It is apparent that for a delinquent to find more socially acceptable outlets for his aggression, indeed to reduce significantly his aggressiveness, is undeniably a reflection of amelioration. While the change was in the direction of neurotic, submissive dependency, it appears that these boys "knew when to stop" and aligned themselves closely to the population mean.

While this sample of delinquents began their treatment significantly below average on I Factor, we cannot say that this is necessarily entirely undesirable. Engineers, surgeons, policemen, and mechanics are, for example, low on this factor. Thus, while low I is not intrinsically undesirable, the pattern formed by its association with defective character (G—, Q3—) and aggressiveness (E+) would appear to present a highly delinquent and antisocial syndrome. To raise I Factor so that it approaches closely to the population average would therefore appear to be an expedient aim in the immediate urgency of deflecting the delinquent from his tough, hypermasculine, cynical characteristics in favor of increased emotional sensitivity.

Finally, the discovery that two months of maximum security without treatment succeeded in changing only one factor in the direction of raised drive tension and anxiety might dispel the notion, which some hold, that the way to treat delinquents is to lock them up, unless it can be shown that some long term changes ultimately follow.

This study provides the first substantial evidence, on a sizeable sample, that guided group interaction, structured group living, group psychotherapy, and academic and vocational training significantly change the delinquent's personality in a favorable direction. It adds a note of nice consistency to learn in the final days of this project that the recidivism rate among first releases

followed for one year during the period of this study dropped from a previous 20 per cent to 16 per cent (22), an all time low, and we are encouraged by these findings to believe that juvenile delinquency can be successfully treated in an institutional setting if the desired personality changes are clearly focussed and measured.

In summary, therefore, the three main generalized findings of the research are: (a) a check that the deviations of admitted delinquents from the general population on the major meaningful personality factors are as recent research has revealed; (b) a demonstration that the new factored tests, as instanced by the HSPQ, are sensitive and reliable enough to reveal significant changes of personality over such a period; and (c) an inference that, since the changes are associated with better adjustment, the aims of the psychoanalytic school in treatment goals may have in the past been wide of the mark.

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INFLUENCE OF SOCIOECONOMIC BACKGROUND ON THE SCORES OF SOME MMPI SCALES*

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A. INTRODUCTION

Among the personality inventories available in America, the Minnesota Multiphasic Personality Inventory (MMPI), constructed and standardized by Professors Starke R. Hathaway and James C. McKinley, and Cattell's "16 P.F. Test" have been found to be most popular among psychologists in general. Four clinical scales of the MMPI—Hypochondriasis (Hs), Hysteria (Hy), Masculinity-Femininity (Mf), and Psychopathic Deviate (Pd)—as well as one validity scale—i.e., Lie (L)—have been adapted in Hindi language and standardized under Indian conditions in order to meet the pressing need of multiphasic personality testing in India (10).

These five scales have been validated against the following six criteria: (a) difference among the *M* (Mean) values of different clinical groups, (b) difference among the *M* values of three clinical groups and normal standardization sample, (c) discrimination power of the items between two extreme scoring groups, (d) internal consistency of the items, (e) intrinsic validity, and (f) construct validity. The 167 items of the final form of these five scales have been found to be highly valid against all six criteria (6). The *relative reliability* of the five scales has been worked out by computing coefficients of stability (time intervals: 12, 134, and 234 days) and coefficients of homogeneity for both the male and female samples separately. *Absolute reliability* of the five scales has been established by computing standard error of measurements (*SEM*). All five scales have been found to be highly reliable (6).

B. PROBLEM

The present study attempts to determine the extent of influence of socioeconomic background on the scores of the five scales standardized under Indian conditions (7). In the prescientific era of psychology, personality was conceived as a gift of God. God was replaced by the discoveries of modern biology in the nineteenth century, and heredity of the individual was con-

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sidered to be the only factor that influenced the development of personality. In recent years, increased importance has been given to the socioeconomic environmental forces in shaping the personality. Since each individual belongs to a somewhat different constellation of cultural subgroups, each individual has a unique personal status or position in a society, and participates in the general sociocultural environment in an individual way. No two individuals live in quite the same world. These differences develop due to socioeconomic and subcultural factors.

The term socioeconomic status covers occupation, cultural background, and income. Low socioeconomic status usually refers to unskilled or semiskilled work and small income. High socioeconomic status connotes an opposite status. Psychologists have studied the effects of family income on personality development and have found that children belonging to a low income group suffer severely from a sense of emotional insecurity, self-devaluation, and isolation. Ultimately, basic attitudes, interests, values, and habits of the individual are changed by such feelings. On the other hand, high socioeconomic status provides a relatively healthful and stimulating environment for child development. "The genetic endowment provides for the essential basis and sets the limits for both physical and psychological development, but the ways in which our potentialities are shaped into actuality depend on our physical and social environment," states Coleman (1, p. 64).

Since socioeconomic status exerts significant influence on the personality development of the individual, it may be assumed that it will also have some appreciable influence on the way that subjects respond to a personality questionnaire.

C. SAMPLE

The five MMPI scales (5) were administered to 2196 urban boys, from freshman to postgraduate classes and from 16 to 26 years of age. The sample was drawn from the average type of college situated in Varanasi and Agra city of Uttar Pradesh. The *incidental-purposive* sampling technique (4) was used in drawing samples. The sample contained students grouped by subject-major as follows: Arts, 663; Science, 563; Agriculture, 612; Commerce, 222; and Education, 136. The socioeconomic level of the guardians of the students ranged from poorly defined class to a very rich stratum, but mainly centered around the lower middle-class status.

D. RESULTS

Scoring revealed that 178 students scored equal to or more than 10 raw score on the L Scale. So high a raw score on the L Scale indicates that there

is a possibility that the scores on other scales may be invalid for these subjects (2). In order to obtain valid and reliable results, it was necessary to eliminate such cases. When all such cases were left out, 2018 cases remained for final statistical analysis.

For the purpose of studying the influence of socioeconomic background on the scores of the five MMPI scales, the sample of 2018 cases was divided into four groups according to the monthly income of parents. Groups I, II, III, and IV were composed of subjects whose fathers' monthly incomes were found to be up to Rs. 100, Rs. 101 to 250, Rs. 251 to 500, and Rs. 501 and above, respectively. After the sample was divided into these four groups, the *M*, standard deviation, and *SEM* for different scales and for the four groups were obtained, as shown in Table 1.

TABLE 1
M, *SD*, AND *SEM* FOR DIFFERENT SCALES AND FOR FOUR GROUPS

| Group | Hs | Hy | Scales | | |
|-----------------------------|-------|--------|--------|--------|-------|
| | | | Mf | Pd | L |
| Group I (<i>N</i> = 801) | | | | | |
| <i>M</i> | 8.928 | 13.702 | 16.254 | 15.378 | 5.126 |
| <i>SD</i> | 4.586 | 4.666 | 3.984 | 4.944 | 2.091 |
| <i>SEM</i> | .162 | .164 | .140 | .174 | .073 |
| Group II (<i>N</i> = 705) | | | | | |
| <i>M</i> | 8.292 | 13.620 | 15.894 | 14.886 | 4.931 |
| <i>SD</i> | 4.422 | 4.518 | 3.848 | 4.976 | 2.152 |
| <i>SEM</i> | .166 | .170 | .146 | .187 | .076 |
| Group III (<i>N</i> = 346) | | | | | |
| <i>M</i> | 8.212 | 13.546 | 15.644 | 14.756 | 4.999 |
| <i>SD</i> | 4.484 | 4.558 | 3.890 | 5.054 | 2.023 |
| <i>SEM</i> | .241 | .245 | .209 | .271 | .108 |
| Group IV (<i>N</i> = 166) | | | | | |
| <i>M</i> | 7.608 | 12.924 | 15.212 | 14.036 | 4.970 |
| <i>SD</i> | 3.964 | 4.100 | 4.194 | 5.002 | 2.233 |
| <i>SEM</i> | .307 | .318 | .325 | .388 | .174 |

Note: Hs = Hypochondriasis, Hy = Hysteria, Mf = Masculinity-femininity, Pd = Psychopathic Deviate, and L = Lie Scale.

The significance of differences among the *M* values on each of five scales of the four groups was tested by obtaining critical ratio (CR) values. CR values are shown in Table 2.

E. DISCUSSION

From Table 1 it can be seen that Group I scores higher than the other three groups on the Hs Scale. The differences among the *M* values of Group I and the remaining three groups is significant at .01, or beyond the level of

TABLE 2
CRITICAL RATIO VALUES TESTING THE SIGNIFICANCE OF DIFFERENCE AMONG
THE *M* VALUES ON EACH OF THE FIVE SCALES OF THE FOUR GROUPS

| Scale | Group | Group | | |
|------------------------|-------|-------|-------|-------|
| | | I | II | III |
| Hypochondriasis | II | 2.789 | | |
| | III | 2.460 | | |
| | IV | 3.505 | .277 | 1.544 |
| Hysteria | II | .331 | | |
| | III | .528 | .248 | |
| | IV | 2.183 | 1.933 | 1.551 |
| Masculinity-femininity | II | 1.441 | | |
| | III | 2.430 | .948 | |
| | IV | 2.943 | 1.921 | 1.108 |
| Psychopathic deviate | II | 1.929 | | |
| | III | 1.931 | .395 | |
| | IV | 3.134 | 1.976 | 1.522 |
| Lie | II | 1.788 | | |
| | III | .697 | .435 | |
| | IV | .834 | .205 | .133 |

confidence. The second, third, and fourth groups do not differ significantly on this scale.

On the Hy Scale, Group I again scores higher than the other three groups. Significant difference is found between Group I and Group IV only. The differences among the *M* values of the second, third, and fourth groups are found to be insignificant.

Average scores of the second, third, and fourth groups are lower than those of the first group on the *Mf* Scale. Again, Group I significantly differs from the third and the fourth groups on this scale. The level of significance is found to be .01.

On the *Pd* Scale, there is only one significant difference—*viz.*, between the *M* values of Group I and Group IV. Group I scores higher than Group IV. No significant difference is revealed among the *M* values of the four groups on the *L* Scale.

Group I, whose income is up to Rs. 100 per month, differs significantly from Group IV on four of the five scales. On the *L* Scale, Group I does not differ significantly from Group IV, whose income is Rs. 500 and above. The other groups do not differ from each other on any of the five scales.

Dahlstrom and Welsh (2) have reported that on the *MMPI* the high status group showed significantly higher value on the *Mf* Scale than did the low status group, while the low group was higher on scales *L*, *Hs*, and *Hy*.

In the present study, the low income group scored higher on the Mf Scale than did the high income group.

The results of the present study are supported by the findings of the American workers. In other words, the Hs, Hy, and Pd types of symptoms of mental disorders are found to be more frequent in the low income group than in the high income group.

Perlman (9), using the original data from the subjects in the Minnesota normative sample, also found that lower class persons consistently obtained higher T scores on the basic clinical scales (Scale Mf not included) than did high-class persons, the only exception being Scale Hy. He concluded that on the scales where scores are earned mainly by symptom admission, the denial pattern of the middle class seemed to lead to lower scale values than did the pattern of the less defensive working class subjects.

Gough (3) developed the socioeconomic status scale from the items of the MMPI on high school students. He divided the students into low-status and high-status classifications by means of the Sims Score Card ratings on their families. Item analysis revealed 34 items sensitive to status in a large group of students.

McDonald and Gynther (8) found that Negroes obtain significantly higher scores than whites on scales L, F, Hs, D, and Mf. Dahlstrom and Welsh (2) suggested that results of Negro-white comparisons are due to socioeconomic inequalities between the two groups.

Such findings suggest the conclusion that middle-class and upper-class students are more sensitive than lower class adults to the unfavorable implications of what they say about themselves on inventories like the MMPI. Such high sensitiveness of upper and middle class may be the cause for their low scores on the clinical scales. It would be necessary to take into account the differences of socioeconomic background whenever these MMPI scales are to be used in research or clinical practice.

Thus the findings of the present study, similar to those from the American workers on the MMPI, further prove the validity of the five given MMPI scales.

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EVIDENCE SUPPORTING A PRAISE DECREMENT HYPOTHESIS IN SCHIZOPHRENIA*

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Buss and Lang (5) recently published an extensive review of evidence concerning psychological deficit in schizophrenia. One of the principal hypotheses examined states that social censure (i.e., usually some form of negative verbal reinforcement) is disruptive of the schizophrenic subject's cognitive and motor functions. The hypothesis was introduced by Rodnick and Garmezy (19) in 1957, and the bulk of subsequent experimental work has refuted it [see Atkinson and Robinson (2); Buss, Weiner, and Buss (6); Cavanaugh, Cohen, and Lang (7); Fischer (9); Goodstein, Guertin, and Blackburn (12); Leventhal (15); and Losen (16)], whereas earlier studies appeared to support it [see Garmezy (11); Olsen (18); and Webb (22)]. In their review, Buss and Lang indicate that social censure is incomplete as an explanation for schizophrenic psychological deficit in laboratory tasks, given the evidence that verbal censure can motivate schizophrenic subjects. Their point is well taken.

However, several of the above-cited studies have suggested the plausibility of a *praise* decrement hypothesis, demonstrating that schizophrenic task performance under praise is reliably poorer than that under censure [see Atkinson and Robinson (2); Buss *et al.* (5); and Leventhal (15)]. Atkinson and Robinson report a praise decrement for schizophrenic subjects in two comparative senses: first, schizophrenic performance is significantly worse in a praise condition compared to a censure condition; and, second, the opposite finding is true for normal subjects. A later study by Berkowitz (4) also reports performance decrements for schizophrenic subjects in a "warmth" condition (subjects praised prior to testing), compared to both a "rebuff" and a no contact, nonevaluative condition. Berkowitz found no similar decrements for normal subjects. Most recently, Ebner (8) reports an experiment in which, under praise, significant verbal conditioning was obtained with normal Ss but not with schizophrenic Ss. In view of the fact that other writers [e.g., Mednick (17)] give reason and evidence why schizophrenic Ss will

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often condition *faster* than nonschizophrenic Ss, Ebner's results add substance to a praise decrement position. Presumably the type of social reinforcement (i.e., praise) used in his study might have accounted for the inferior performance of schizophrenic Ss.

The evidence supporting a praise decrement for schizophrenic subjects is consistent with the etiological theories that propose schizophrenia is a maladaptive defensive reaction to a censorious interpersonal environment in the patient's formative past [see Arieti (1); Bateson *et al.* (3); Fromm-Reichmann (10); and Sullivan (21)]. An extension of the theory to the experimental situation would hold that praise is discordant with the schizophrenic subject's unusually low self-esteem. The schizophrenic subject has a negative perception of his self that is dissonant with the experimenter's praise of that self. The hypothesis thus states that schizophrenic subjects are unused to receiving praise, are uncomfortable with it, and not likely to respond favorably to it.

The evidence is at this point tentative, but the praise decrement hypothesis appears more tenable than does the original social censure hypothesis proffered by Rodnick and Garmezy (19), and should go a long way toward explaining the absolute psychological deficit noted by Hunt and Cofer (13), Kendig and Richmond (14), Shakow (20), and others. Perhaps the most useful approach for future research would consist of an exploration of the interaction of oral reinforcement with the self-esteem variable of schizophrenia.

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ANTICIPATED SOCIAL CENSURE AND
AGGRESSION-CONFLICT AS MEDIATORS
OF RESPONSE TO AGGRESSION INDUCTION*

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A. INTRODUCTION

In a recent volume concerning the causes of Nazi atrocities, Hannah Arendt (1) has posited that much of Nazi sadism derived from what she refers to as "banality." She has described such persons as Eichmann as hungering for a rise in rank and status rather than as purposeful sadists. Arendt's thesis argues that the sadistic acts by Nazi officials upon outgroup members were perpetrated more for social recognition, upward mobility, and social approval motives than for aggressive needs alone. That Arendt's interpretation is controversial to the layman is obvious in the long diatribes printed in respectable journals subsequent to the publication of her book (5, 14). The primary source of disbelief on the part of Arendt's critics seems to reside in the idea that antisocial, hostile acts can be committed in the service of "prosocial" goals. Arendt's critics continually try to portray Eichmann, and others like him, as hostile, sadistic persons. Arendt argues, on the other hand, that such persons were more likely nondiscriminating, boorish, or banal individuals who were rarely apt to question the values of the system in which they were participants. The similarity between Arendt's description of Eichmann and Otto Rank's (16) portrait of "average man" are marked.

In the psychological literature concerning conformity, the individual's willingness to agree with "wrong" judgments and his susceptibility to group demands has been a well-known and tested phenomenon (4). Until recently, however, there has been little experimental data that might help to bridge the gap between information regarding conformity and field incidents where social pressure helps determine such occurrences as mass executions. That a large gap exists between the effects of social pressure in a benign length of line judgment task and choosing to participate in mass executions and torture is obvious.

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In a series of investigations concerning "obedience," Milgram (9, 10, 11) has presented an extension of the conformity literature to behavior that is, in some ways, analogous to the Nazi atrocity behaviors. Milgram has used the experimenter-subject relationship as a model of the authority-subordinate interaction. In his obedience studies, the experimenter encourages and, if necessary, demands that the subject administer increasingly severe shock to a victim during a learning task; the victim, meanwhile, protests, complains, and even screams in response to the shock. The dependent measure is customarily the number of trials before the subject refuses to continue. Briefly, Milgram has reported findings that substantially support Arendt's position, that atrocity-like behavior can be induced in a high proportion of individuals who appear to be ordinary, nonsadistic people. In fact, Milgram finds more than half of his subjects submitting to his demands at all times unless some unusual counter-demand procedure is utilized (11). In short, Milgram finds that people will commit "sadist-like" acts as a function of obedience to social demands rather than as a function of a "hostile nature."

In research concerning the disinhibition of aggression through use of aggressive models, Walters and Thomas (18) reported that punitive or aggressive responses increase after the viewing of aggression displays. Walters and Thomas were arguing against a catharsis hypothesis, that vicarious participation in aggressive displays would lead to a decrease in aggression. In explaining their results, these writers suggested that disinhibition of aggression could occur in two ways. First, "the mere observation of an aggressive model who is not punished for his aggression may lead to a lessening of inhibitions on the expression of aggression. Second, for some groups of subjects, aggression may increase even in the *absence of anger*,¹ positive reinforcement, or the example set by a model, if no untoward social consequences of their previous aggression are apparent. It is probably only the continual expectation of retaliation by the recipient, or by other members of society, that prevents many individuals from more freely expressing aggression" (18, p. 252).

Walters and Thomas may be viewed as being in sympathy with Arendt and Milgram's emphasis on the social field as the prime determinant of aggressive behavior. In fact, these writers seem to be in agreement that aggressive behavior may be unrelated to any affect or inner state classifiable as hostile or angry. Nevertheless, each writer has qualified his statements to allow for individual variation. Milgram has usually found close to 35 per cent of his subjects refusing to cooperate, and Walters and Thomas have cautiously included the phrase "some groups of subjects" into their statement. It will be

¹ Italics are the authors' own.

the purpose of this investigation both to explore a relevant individual difference measure, and to help clarify the situational demand characteristics granted such import by these previously mentioned writers.

In accord with the Walters and Thomas hypotheses, it is the intent of this investigation to test the effects of censure expectancy upon aggression expression. It is predicted that aggression will increase when subjects anticipate little or no censure for being aggressive. In contrast, subjects who expect disapproval or censure for displays of aggression will exhibit a decrease in aggression.

Secondarily, differential responsivity to censure probability is predicted from the conflict model in social learning theory (17). Conflict, in social learning terms, involves the difference between the value of and expectancy of being able to achieve a given goal. A person would be described as conflicted if he exhibited strong preferences for a given goal (high reinforcement value) and little hope of success (low expectancy) for obtaining that goal. In this study, it is predicted that individuals who exhibit conflict regarding aggressive behavior will be most influenced by the censure expectancy conditions. With anticipated censure, aggression conflicted individuals should show a greater decrease in aggression than individuals who are less conflicted about aggression, in a customarily aggression-inducing situation. With little expected censure, however, the aggression conflicted person should exhibit a greater increase in aggression than his less conflicted peer.

These latter predictions are made on the assumption that conflict indicates high reinforcement value for aggressive behavior. The accompanying expectancy of rebuke for executing such behavior should, however, be most subject to an experimental manipulation of censure probability. With low censure expectancy conditions, conflict would be abated and the otherwise conflicted person should become increasingly aggressive. With high censure expectancy, however, conflict remains intact so that conflicted persons should exhibit decided avoidance of aggressive behavior. The nonconflicted person, however, should demonstrate less variability between conditions than is shown by conflicted subjects, since their aggressive behavior is less strongly motivated, less guilt or anxiety arousing, and hence less subject to the effects of external censure.

B. METHOD

1. *Subjects*

Forty male members of two introductory psychology classes at the University of Waterloo, who had previously completed the aggression-conflict measure, were solicited to participate in the experiment. All Ss were volunteers

who were paid one dollar for their services. No connection was drawn between the conflict measurement session and the experimental session.

2. *Measurement of Aggression-Conflict*

Under the guise of a study of creativity, students in two introductory psychology classes completed written stories to a series of seven projected pictures. Four of the pictures² were drawn from the Kagan aggression picture series (8). An additional three pictures from the need-achievement series served as diversions from the aggression series. The Kagan pictures were administered in an ascending order of aggression cue clarity. Three minutes were allowed for each written response, which was made to standard questions (2).

Briefly, aggression conflict is indicated by the absence of aggression themes given to aggression cued pictures. Murstein (12) has written, "If then a series of fairly non-ambiguous hostile pictures are presented to a mixed group of normal and ego-defensive Ss we might expect the normal group to perceive the cards as hostile, while the ego-defensive group might be less prone to acknowledge the stimulus properties of the cards in an effort to maintain a good impression before the examiner" (12, p. 232).

In this investigation, Ss who failed to write aggression stories to aggression cued pictures are described as doing so because they expected censure from the middle-class test administrator, or experienced guilt regarding the expression of their strong needs for aggression. The use of such explicit cued pictures has been amply demonstrated (6, 8, 13).

Responses to the pictures were scored according to Kagan's (7) criteria. A theme was scored as aggressive if there were references to fighting, destruction of property, stealing, and swearing. These themes were scored by the four authors. Interrater reliability between pairs of raters was $+.79$ and $+.84$ for total scores. The final scores used were the averages of the two ratings. Aggression scores ranged from zero to 6 with a median of 2.5. Ss who scored below the median were classified as aggression-conflicted (A-C), while those giving more than the median number of aggression themes were categorized as nonconflicted (N-C). Twenty A-C and 20 N-C Ss were used in the experiment.

3. *Procedure*

Upon arrival at the testing room S was seated in front of a panel and given the following instructions:

² Kagan cards used were c11—boy with fist, other boy with hand over mouth; a14—man leaning towards older man with back of fist; a2—one man punching another; and a1—one man strangling another.

This is an experiment studying the effects of an interpolated activity, the showing of a film, on a reward and punishment learning task. We would like you to teach this code (printed code of numbers handed to *S*) to another subject (*C*),³ who should be along any moment now. You will teach this code to the other subject by using the machine in front of you. The numbers of the code sheet correspond to the row of five levers (situated at the lower part of the apparatus), and as you can see from the code sheet there are 30 trials in both the first and second series of trials. On each trial you simply press down simultaneously the two levers which correspond to the two numbers on your printed code.

The learning subject will receive the code on a panel of lights which he has on the top of his machine and will respond by attempting to match the two lights which come on with a row of levers which he has at the bottom of his machine. When he responds correctly, this green light will come on your panel and you press this lever to the "correct" position in order to indicate to him that he has made a correct response. If he responds incorrectly, this red light will come on and you administer the punishment by pressing this lever down to the "shock" position.

The numbers that you see on this top dial indicate the level of shock intensity; the intensity increases as one moves the indicator from 0 to 10. Every time your learner makes an incorrect response you select a particular intensity level and depress this lever; as long as the lever is depressed, your learning subject will receive electric shock. (*S*s held the shock electrodes while *E* was explaining the shock procedure and received a low voltage charge described as level 1.)

After you have completed the punishment, be sure and return the shock lever back to neutral position and the intensity indicator back to the zero position.

When *E* had established that *S* was capable of operating the machine and had understood the instructions, he told *S* he would return to the waiting room to see if the other subject had arrived. *E* returned with *C* and introduced him to *S*. *E* then proceeded to give the following instructions to *C*:

We are interested in the effects of an interpolated activity, the showing of a film, on a reward and punishment learning task. We would like you to take the part of the learner in this situation and learn a particular code which Mr.—(*S*) will teach you through the machine he has in front of him. (After *C* had agreed to be the learner he was taken behind the wooden screen and seated before his panel.) When Mr.—(*S*) depresses two of the levers on his machine, two of these lights on the top of your panel will come on; your part of the experiment is to learn which of the lights that come on link up with which of these levers at the bottom of your machine. If you match them incorrectly, you will receive an electric shock through these electrodes which I am now going to strap onto your hands. (Sounds of two straps snapping were then heard,

³ Confederates of the experimenter.

although in fact the electrodes were not put on.) *E* then requested both *C* and *S* not to speak to each other during the learning experiment. As *E* left the room, he told *S* that he would tell him when to begin over the intercom system.

The first series of 30 trials was then administered by *S*: on 15 of these trials he was required to administer shock. The duration and intensity of shock were recorded by *E*.

On the completion of the first series of 30 trials, *E* re-entered the experimental room and seated *C* and *S* next to each other in preparation for viewing the movie (the knife fight scene from *Rebel Without a Cause*). Just before leaving the room, *E* said, in the low censure expectancy condition: "I am now going to show you a film you ought to really enjoy, one with plenty of action and all that kind of thing." *S*s in the high censure expectancy condition heard the following comment: "I am now going to show you a film about a bunch of hoodlums who ought to be locked up."

During the showing of the film, *C* made prepared comments about particular scenes; in the low censure condition, his comments were: "Looks like there's going to be some good action here." "It's about time he picked it (knife) up." "Good job." And at the end of the film *C* said, "Damn it, they cut it off just at the juicy part." In the high censure condition, *C* made the following comments: "Those rotten kids." "Looks like someone's really going to get hurt here." "The rat." And at the termination of the film *C* said, "He was right, those kids ought to be locked up."

As soon as the film showing was over, *E* requested *C* and *S* to return to their respective places. The electrodes were again ostensibly strapped on *C*'s hands. Both *C* and *S* were cautioned not to speak while the learning experiment was on. The second series of 30 trials was run in exactly the same manner as the first. At the completion of the second series of trials, *E* told both *C* and *S* that he was also interested in determining a person's perception of another person's attitudes. Both *C* and *S* were requested to rate each other's attitude toward (approval or disapproval) aggression on a seven-point rating scale.

4. *Confederates*

Two male graduate students in their midtwenties served as confederates (*C*s). No *C* was known to any *S* prior to the experimental period.

5. *Apparatus*

The equipment consisted of three panels, two of which were set in the experimental room, which was divided by a large wooden screen. The control unit was placed in an adjoining room separated by a one-way vision screen.

This arrangement allowed *E* to observe *S*, while *S* could observe neither *E* nor *C* as he operated his panel. *E*'s master panel registered all of *S*'s manipulations of the controls and permitted *E* to control all of the information received by *S*. Details of the equipment used may be found in Bandura and Walter's *Social Learning and Personality Development* (3).

6. Measures

The average of the shock-level settings selected by each *S* and the average duration time of shocks delivered were obtained for both the pre- and posttest series of trials. The effects of exposure to film-mediated aggression and the high vs. low censure expectancy manipulations were assessed primarily from the pre- to posttest changes (*D* scores) of the level and duration of shock administration. A Level \times Duration index, obtained by multiplying each intensity level by each duration time, was also used. This product was calculated on the assumption that a weaker shock delivered for a relatively long period of time would be as punitive as a stronger shock delivered for a short period of time.

The procedures and measures described are very similar to that used by Walters and Thomas (18), who found increases in aggression from the first to second sessions with three different subject groups. It was assumed, therefore, that the modal response would be for an increase in shock Level, Duration, and Intensity \times Duration indices.

Under the low censure conditions, it is consequently predicted that the typical increase in measures of aggression will be found, especially in the aggression conflicted group. Under the high expectancy of censure condition, however, the usual increase is not predicted. Instead a decrease in aggression levels is hypothesized, especially for the aggression conflicted *Ss*.

C. RESULTS

In order to test for the effectiveness of the censure-expectancy manipulation, *S*'s ratings of *C*'s attitudes toward aggression were compared. Mean ratings of 5.92 and 3.82 were obtained for high and low censure expectancy condition *Ss*, respectively. This indicates that *Ss* in the low censure condition perceived the *C* as sanctioning aggression significantly more than did *Ss* in the high censure condition ($t = 2.08, p < .05$).

Table 1 presents the pre- and postfilm presentation shock Level, shock Duration, and shock Level \times Duration indices. No differences were found among the four groups on any of the aggression indices in the prefilm presentation period.

The remainder of the data presentation involves the changes in the ag-

gression indices from the pre- to postfilm periods. Changes are measured by difference scores (D scores), group mean changes representing the average D scores of the sample described.

The results of the analysis of variance of changes in shock Intensity level are given in Table 2. S s in the low censure expectancy condition displayed a significantly greater increase in shock Intensity level than did S s in the high censure expectancy condition. No effects were found for S classification (A-C

TABLE 1
MEANS AND SD s OF PRETEST AND POSTTEST SCORES FOR THREE INDICES OF AGGRESSION

| Group | Pretest measures | | Posttest measures | |
|---|------------------|------|-------------------|------|
| | X | SD | X | SD |
| <i>Shock Intensity</i> | | | | |
| N-C high censure | 2.65 | .22 | 2.81 | .67 |
| N-C low censure | 3.24 | 1.00 | 3.81 | 1.67 |
| A-C high censure | 3.81 | 1.73 | 3.73 | 1.91 |
| A-C low censure | 3.37 | 1.66 | 4.51 | 2.06 |
| <i>Shock Duration</i> | | | | |
| N-C high censure | 1.40 | .11 | 1.29 | .36 |
| N-C low censure | 2.28 | 1.65 | 1.86 | 1.14 |
| A-C high censure | 1.42 | .32 | 1.22 | .31 |
| A-C low censure | 1.60 | .66 | 1.62 | .75 |
| <i>Shock Intensity \times Duration</i> | | | | |
| N-C high censure | 3.75 | 1.37 | 3.57 | 1.19 |
| N-C low censure | 7.87 | 6.05 | 7.32 | 5.51 |
| A-C high censure | 5.50 | 3.03 | 4.44 | 2.65 |
| A-C low censure | 6.22 | 4.73 | 8.17 | 7.46 |

Note: N-C = nonconflicted subjects and A-C = aggression-conflicted subjects.

vs. N-C). In addition, no interaction was found between condition and S classification. Contrary to prediction, a general decrease in Intensity level from prefilm levels was not found under the high censure expectancy condition. Only the aggression-conflict group exhibited a mean decrease, while the N-C group showed a small increase in Intensity level. The trends, though not powerful enough to reach statistical significance, were in the predicted directions, A-C S s showing more change with the direction of censure expectancy than was shown by N-C S s.

Table 3 presents the results of analysis of variance of changes in shock Duration from the first to second sessions. No differences were found due to condition or S variables. However, the interaction between type of S and the experimental conditions approached a barely acceptable level of significance ($F = 3.61, p < .10$). Although this significance level hardly justifies a closer examination of the data, it is of interest that only the A-C S s increased

TABLE 2
ANALYSIS OF VARIANCE FOR PRETEST TO POSTTEST CHANGES IN SHOCK INTENSITY LEVEL

| Source | <i>df</i> | <i>MS</i> | <i>F</i> |
|--|-----------|-----------|----------|
| Censure expectancy (A) (high—low) | 1 | 1525.22 | 7.79* |
| Aggression conflict (B) (high <i>vs.</i> low) | 1 | 70.23 | < 1 |
| A × B | 1 | 342.23 | 1.75 |
| Within | 36 | 195.84 | |
| Total | 39 | | |

* $p < .01$.

their average shock duration, and then only in the low censure expectancy condition. The paucity of results with the shock Duration index by itself is not surprising. Previous investigators (18) have used it only in supplement to the Intensity measure as reported below. By itself the Duration measure may be confounded with such variables as motor reaction times, which are superfluous to the purposes of the experiment.

The results of the analysis of variance for the shock Level × Duration index is presented in Table 4. A relatively weak main effect ($F = 3.70$, $p < .10$) is found for censure expectancy condition. With low censure expectancy a greater increase in this index was obtained. In addition, a significant interaction was found ($F = 6.08$, $p < .02$) between *S* type and condition. Individual group comparisons were carried out by means of two-tailed Neuman-Keuls tests of significance. Where N-C *Ss* showed no difference with conditions, A-C *Ss* were found to differ significantly between the high and low censure expectancy conditions ($p < .05$). A-C *Ss*' scores decreased with high censure and increased with low censure expectancy conditions. The increase in Intensity × Duration score with low censure expectancy likewise differ-

TABLE 3
ANALYSIS OF VARIANCE FOR PRETEST TO POSTTEST CHANGES IN SHOCK DURATION

| Source | <i>df</i> | <i>MS</i> | <i>F</i> |
|--|-----------|-----------|----------|
| Censure expectancy (A) (high—low) | 1 | 2.69 | |
| Aggression conflict (B) (high <i>vs.</i> low) | 1 | 72.51 | 1.71 |
| A × B | 1 | 153.62 | 3.61* |
| Within | 36 | 42.50 | |
| Total | 39 | | |

* $p < .10$.

entiated the A-C and N-C Ss ($p < .05$). A-C Ss under low censure conditions were the only Ss to show an increase in their scores. On the other hand, A-C Ss also showed a greater decrease than did N-C Ss with high censure expectancy, though not significantly so. In short, the increased aggressiveness with low censure expectancy conditions in the A-C group accounted for the greatest part of the obtained interaction.

Since there was some evident heterogeneity of variance in the results reported, the data were subjected to a nonparametric analysis. For the shock

TABLE 4
ANALYSIS OF VARIANCE FOR PRETEST TO POSTTEST CHANGES
IN SHOCK-INTENSITY \times SHOCK-DURATION INDEX

| Source | <i>df</i> | <i>MS</i> | <i>F</i> |
|--|-----------|-----------|----------|
| Censure expectancy (A) (high—low) | 1 | 3945.59 | 3.70* |
| Aggression conflict (B) (high <i>vs.</i> low) | 1 | 1496.34 | 1.40 |
| A \times B | 1 | 6496.13 | 6.08** |
| Within | 36 | 1067.66 | |
| Total | 39 | | |

* $p < .10$.

** $p < .02$.

intensity measure (the one index in which a main effect was found), a Kruskal-Wallis test of significance produced significant differences ($H = 8.69$, $p < .05$). Consistent with the parametric analyses no main effects were found for the Duration or Intensity \times Duration indices.

D. DISCUSSION

The primary predictions regarding the effects of anticipated censure for aggressive behavior received support from the results obtained in the shock Intensity level measure. However, similar effects were not found in the shock Duration index, and only mildly in the Intensity \times Duration measure. The stronger relationship between censure anticipation and Intensity level chosen may derive from the fact that these variables involve cognitive decision processes, whereas duration of shock may be confounded with motor reaction time and other less cognitive attributes. In that the explicit censure contingencies produced clear differences for shock levels chosen by the Ss, the results tend to support the position of Walters and Thomas (18) regarding the likelihood of aggression when there is little expectation of retaliation. Arendt's and Milgram's emphases on situational demands as better predictors of aggression than inner states likewise receive some support.

In regard to predictions of differential responsivity to anticipated censure between aggression-conflicted and nonconflicted Ss, the results appear somewhat equivocal. In no instance did aggression-conflict, as measured by the Kagan pictures, produce a main effect on criterion measures of aggression. However, on the Intensity \times Duration index, a significant interaction was found between aggression conflict and censure expectancy. A similar, but weaker, relationship was found for the Duration index. Although differences between A-C and N-C Ss within each condition achieved significance in only one instance, the differences between A-C Ss in low and A-C Ss in high censure expectancy conditions appears far greater than similar differences among N-C Ss in the two conditions. It can be stated that A-C Ss displayed greater responsivity to censure expectancy than did N-C Ss.

In all three criterion measures, as indicated in Table 1, the pretest to post-test changes were all in the expected directions, A-C Ss showing greater increases in aggression with low censure expectancy, and more decreases in aggression with high censure expectancy than was shown by N-C Ss. Only in the Intensity level \times Duration index, however, did the difference reach statistical significance; A-C Ss increased aggression more than did N-C Ss when the expectancy of censure was low. In general, aggression-conflicted Ss revealed greater variation with changing conditions than did less conflicted Ss, though not dramatically so. These findings provide some small support for the position advanced by Murstein (12) that the rejection of explicit cues, as presented in the Kagan picture series, may be useful as a measure of motivation or motive-conflict. Failure to report aggression stories to aggression cued pictures may be viewed in a similar manner as nonaggressive behavior in aggression eliciting situations. In both instances Ss may be responding to anticipated censure, for creating aggression stories in the former, and acting aggressively in the latter.

Although some small support is granted the aggression-conflict measure as a predictor of response to cues concerning contingencies of aggressive behavior, it is apparent that refinements in measurement are required. Denial of aggression may be most profitably measured in situations structured as personal assessments, and possibly by techniques requiring self-description. Nevertheless, the results are at least suggestive that Shakespeare's classic phrase "the gentleman protesteth too much" may have some validity for assessment procedures.

E. SUMMARY

On the assumption that expectation of censure is a prime determinant of aggression expression, increases and decreases in measures of aggression in

an aggression induction situation were predicted on the basis of situationally varied censure expectancy.

In addition differential effects of censure expectancy were predicted by a measure of aggression conflict. *Ss* who had exhibited conflict regarding aggression in TAT-like stories were expected to exhibit greater responsivity to censure conditions becoming more aggressive in low censure expectancy conditions, and less aggressive in high censure expectancy conditions, than less conflicted individuals.

On three indices of aggression, Level of shock, Duration of shock, and Intensity \times Duration, the hypotheses received some support. Shock Levels were found to increase significantly from pre- to postfilm periods in the low censure expectancy condition, while a tendency to decrease was found in the conflicted *Ss* with high censure expectancy conditions. In the Intensity \times Duration index, a significant interaction was found between aggression-conflict and censure expectancy conditions. Conflicted *Ss* were found to increase aggression with low censure expectancy, while nonconflicted *Ss* exhibited little change with condition.

Though a significant interaction was found only in the latter index, the results in the other two analyses revealed similar trends; conflicted *Ss* appeared more responsive to conditions, becoming more aggressive when censure expectancy was low and less aggressive when censure expectancy was high, than did nonconflicted *Ss*.

The results were said to give some support to assertions regarding the importance of field determinants of aggression and, at least, suggestive support to hypotheses regarding conflict measures based on avoidance of specific cues.

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CONSISTENCY IN ATTITUDES TOWARD CIVIL LIBERTIES*

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A. PROBLEM

In a recent statement to the American Civil Liberties Union, President Johnson wrote that "The Civil Rights Act of 1964 reflects a broad national consensus—and a deep national commitment—to honor the principles of our Constitution, for all citizens" (2). However, the attitudes that various groups have expressed toward rights guaranteed by the Constitution have been a matter of considerable concern, and the research literature suggests that a question may be raised as to how broad this consensus or how deep this commitment actually is. Remmers and his associates (1, 4, 5), for example, have found that considerable numbers of high school students express attitudes inconsistent with principles set forth in the Bill of Rights, and McGinnies (3) produced evidence that university students in the United States were less favorable toward civil liberties than were students in Japan.

The research literature also indicates that certain rights and freedoms may be more strongly supported than others. Selvin and Hagstrom (6) reviewed a number of studies and found that the freedoms of speech, press, and assembly were more strongly supported than was the right to confront one's accusers or the guarantee against double jeopardy. They concluded that support for civil rights appears to depend upon the specific right in question.

Despite the overwhelming importance of the issues that are involved, the research evidence in this area is surprisingly sparse. Nowhere in the literature does there appear to be a precise attempt to examine the extent and consistency of support on the part of individuals for a broad spectrum of civil rights. The purpose of the present investigation was to provide information concerning this important matter and to explore the general dimensionality of civil libertarian attitudes.

B. METHOD

The instrument used in the present investigation was a modification of a questionnaire employed by the American Civil Liberties Union (ACLU) in

* Received in the Editorial Office, Provincetown, Massachusetts, on October 12, 1965. Copyright, 1966, by The Journal Press.

its recruitment of new members. The Union, which was founded in 1920 and now has 33 affiliates and nearly 60,000 members, is a nonpartisan organization devoted to the defense of the Bill of Rights. The immediate concerns of the Union and the issues before the American public appear to be broadly portrayed in the questionnaire.

For the purposes of the present research, the 20-item questionnaire was converted into a Likert-type scale. For each item the subject was asked to indicate the extent of his agreement or disagreement by encircling one of five scale points: "strongly agree," "agree," "undecided," "disagree," or "strongly disagree."

TABLE 1
ANALYSIS OF SEX DIFFERENCE IN OVERALL SCORES

| Group | <i>N</i> | Mean | Range | <i>SD</i> | <i>t</i> | <i>p</i> |
|--------|----------|-------|-------|-----------|----------|----------|
| Female | 300 | 67.38 | 51-86 | 5.77 | 1.88 | > .05 |
| Male | 233 | 68.38 | 50-88 | 6.35 | | |

The respondents were 533 students (300 female, 233 male) enrolled in several sections of the introductory psychology course at the University of Hawaii. The respondents were informed that information was being gathered for purposes of research and that their replies would be considered confidential. No student refused to participate, but in a few instances individual items were not answered.

C. RESULTS

Each item of the questionnaire was scored from one to five or five to one in such a manner that high scores indicated libertarian attitudes and low scores nonlibertarian ones. In this way, for the 20 items overall scores ranging from 100 to 20 were possible. Ranges, means, and standard deviations of the male and female respondents are presented in Table 1, along with an analysis of sex difference. As the table indicates, there is no significant difference between the means of the two sex groups. The total scores tended to be skewed toward the libertarian end and, in general, indicated a modest libertarian bias.

To determine the discriminative facility of each item, median values of respondents making high and low overall scores were compared through use of chi square. For this purpose, use was made of the top 27 per cent (libertarian) and bottom 27 per cent (nonlibertarian) of the subjects of each sex (Kelley's criterion). Chi squares were also computed between the median scores of each item for males and females. These chi square values, the items themselves, and

TABLE 2
ITEMS, MEANS, STANDARD DEVIATIONS, AND ANALYSIS OF DIFFERENCES BETWEEN GROUPINGS

| Item | Males (N = 233) | | Females (N = 300) | | Total | | Males vs. Females | | High vs. Low | |
|---|--------------------|------|----------------------|------|-------|------|-------------------------|---------------------------|-------------------------|---------------------------|
| | M | SD | M | SD | M | SD | X ² | Females X ² | Males X ² | Females X ² |
| 1. Students receiving financial aid from the government should be required to swear that they are not members of the Communist Party. | 2.57 | 1.27 | 2.68 | 1.15 | 2.68 | 1.20 | 2.0 | 11.0** | 26.3** | |
| 2. Congressional investigations in- to "un-American" propaganda and association should be ended. | 1.91 | 1.03 | 1.77 | .89 | 1.83 | .96 | 0.1 | 1.0 | 1.2 | |
| 3. Labor unions should be required to give to all rank-and-file members the guarantee of due process, free speech, and equality. | 4.14 | .73 | 4.07 | .73 | 4.10 | .73 | 1.8 | 8.8** | 8.6** | |
| 4. Belonging to the Communist Party should be a federal crime. | 2.91 | 1.31 | 2.84 | 1.20 | 2.87 | 1.25 | 0.3 | 29.0** | 34.0** | |
| 5. Everyone who invokes the privi- lege against self-incrimination must be guilty as suspected. | 3.65 | .98 | 3.45 | .92 | 3.54 | .95 | 2.5 | 19.6** | 30.6** | |
| 6. Any private individual should have the right to criticize any government or government official anywhere in the world. | 3.87 | 1.07 | 3.69 | 1.02 | 3.77 | 1.04 | 0.6 | 23.8** | 20.1** | |
| 7. Parochial school pupils are en- titled to free bus service, paid for from public funds. | 3.37 | 1.22 | 3.76 | 1.06 | 3.59 | 1.15 | 18.9** | 12.7** | 5.6* | |

TABLE 2 (continued)

| Item | Males (<i>N</i> = 233) <i>M</i> <i>SD</i> | Females (<i>N</i> = 300) <i>M</i> <i>SD</i> | Total <i>M</i> <i>SD</i> | Males <i>vs.</i> Females <i>X</i> ² | High <i>vs.</i> Low Males <i>X</i> ² | Females <i>X</i> ² |
|---|--|--|-----------------------------|---|---|----------------------------------|
| 8. The Postmaster General should be allowed to ban books like "Lady Chatterley's Lover." | 3.76 1.03 | 3.76 .95 | 3.76 .99 | 0.9 | 19.9** | 34.6** |
| 9. In "cleaning up" television, the FCC must avoid all censoring of program content. | 2.73 1.02 | 2.38 .88 | 2.53 .96 | 11.2** | 4.6* | 3.2 |
| 10. Movies, plays, and books presenting an offensive characterization of a particular racial or religious group should be suppressed. | 3.31 1.16 | 3.07 1.15 | 3.18 1.16 | 3.1 | 18.4** | 52.2** |
| 11. Everyone should have the right to leave any country, including his own, and to return to his country. | 3.72 1.07 | 3.75 .97 | 3.74 1.01 | 1.0 | 6.4* | 7.5** |
| 12. Police are entitled to hold arrested persons as much as 24 hours before arraigning them in front of a magistrate. | 2.74 1.08 | 2.75 .99 | 2.74 1.03 | 2.0 | 8.4* | 18.2** |
| 13. Those accused as security risks under the federal security programs should have the right to confront and cross-examine their accusers. | 3.71 .96 | 3.60 .89 | 3.65 .92 | 1.2 | 10.9** | 7.9** |
| 14. The U. S. Supreme Court's power to review civil liberties cases should be curtailed. | 4.00 .85 | 3.87 .71 | 3.92 .78 | 1.0 | 30.0** | 10.2** |

TABLE 2 (continued)

| Item | Males (<i>N</i> = 233) <i>M</i> <i>SD</i> | | Females (<i>N</i> = 300) <i>M</i> <i>SD</i> | | Total <i>M</i> <i>SD</i> | Males vs. Females <i>X</i> ² | High vs. Low Males Females <i>X</i> ² <i>X</i> ² |
|--|--|------|--|------|-----------------------------|--|---|
| 15. In their war against crime police- men are entitled to listen in on private phone conversations. | 2.93 | 1.25 | 2.86 | 1.22 | 2.89 1.23 | 0.5 | 10.3** 4.9* |
| 16. Laws against the use and sale of birth control devices violate rights of privacy guaranteed by the U. S. Constitution. | 2.97 | 1.17 | 2.90 | 1.13 | 2.93 1.15 | 0.3 | 31.9** 12.1** |
| 17. States' rights clauses in the Con- stitution justify efforts by cer- tain Southern states to prevent Negroes from voting. | 4.17 | .98 | 4.14 | .88 | 4.15 .93 | 1.5 | 2.3 30.7** |
| 18. Racial discrimination in housing, public and private, should be prohibited by law. | 3.81 | 1.23 | 3.83 | 1.13 | 3.82 1.17 | 2.3 | 12.4** 5.3* |
| 19. Segregation in public schools vio- lates the equal protection of the law guaranteed to all Ameri- cans by the Constitution. | 4.24 | .89 | 4.29 | .83 | 4.27 .86 | 0.0 | 8.1** 14.2** |
| 20. To "emancipate the American Indian," reservations should be closed and federal services ter- minated—regardless of the tribes' wishes. | 3.86 | .89 | 3.89 | .79 | 3.88 .84 | 0.2 | 58.8** 30.9** |

* Significant at the .05 level.

** Significant at the .01 level.

their means and standard deviations appear in Table 2. As the table indicates, males and females did not generally differ in their response to the individual items; only two of the 20 comparisons achieved statistical significance. The items, however, proved to have high discriminational power; of the 40 comparisons, only four failed to prove significant.

In order to determine the extent to which each item contributed to total "libertarian" score, item-total score correlations were computed for males,

TABLE 3
ITEM-TOTAL SCORE CORRELATIONS

| Item | Male S_s ($N = 233$) r | Female S_s ($N = 300$) r | Total S_s ($N = 533$) r |
|------|------------------------------------|--------------------------------------|-------------------------------------|
| 1 | .20 | | |
| 2 | .18 | .29 | .31 |
| 3 | .25 | .09 | .13 |
| 4 | .40 | .20 | .26 |
| 5 | .42 | .38 | .43 |
| 6 | .36 | .36 | .39 |
| 7 | .22 | .41 | .43 |
| 8 | .37 | .18 | .22 |
| 9 | .22 | .40 | .43 |
| 10 | .34 | .12 | .18 |
| 11 | .18 | .45 | .42 |
| 12 | .25 | .24 | .24 |
| 13 | .27 | .31 | .32 |
| 14 | .28 | .23 | .26 |
| 15 | .26 | .23 | .30 |
| 16 | .29 | .18 | .28 |
| 17 | .25 | .28 | .33 |
| 18 | .23 | .34 | .32 |
| 19 | .17 | .09 | .17 |
| 20 | .24 | .16 | .18 |
| Sex | — | .21 | .24 |
| | | | — .08 |

Note: With $df = 531$, r must be .09 to be significant at .05 level, and r must be .12 to be significant at .01 level.

females, and total sample. All of the correlations, presented in Table 3, proved to be nominally significant. The positive nature of the indices was not unexpected in view of the part-whole relationships expressed by these measures. However, the general modest level of relationship between item and total score was unexpected and suggested the hypothesis that libertarian attitude, as indexed by total test score, is factorially complex.

To explore this hypothesis further, the interrelationships between the individual items were computed and the matrix of these correlations is presented in Table 4. Clearly the low relationship between items suggests—from a prediction standpoint—that knowledge of a respondent's attitude toward one

civil liberty issue (e.g., congressional investigations) would be of negligible value in predicting his attitude toward other issues (e.g., racial discrimination in housing).

TABLE 4
MATRIX OF CORRELATIONS BETWEEN QUESTIONNAIRE ITEMS

| Item | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|------|------|------|------|------|------|------|------|------|------|------|
| 1 | | | | | | | | | | |
| 2 | .08 | | | | | | | | | |
| 3 | -.01 | -.07 | | | | | | | | |
| 4 | .22 | .12 | .00 | | | | | | | |
| 5 | .10 | .02 | -.03 | .21 | | | | | | |
| 6 | -.00 | .01 | .15 | .14 | .06 | | | | | |
| 7 | .05 | -.08 | -.09 | .05 | -.04 | .01 | | | | |
| 8 | .09 | .00 | .01 | .19 | .07 | .11 | .23 | | | |
| 9 | .04 | .12 | -.01 | .06 | .02 | .01 | -.08 | .06 | | |
| 10 | .08 | -.05 | .05 | .19 | .24 | .20 | .08 | .27 | .09 | |
| 11 | .12 | .05 | .02 | .04 | .03 | .16 | .05 | -.01 | -.01 | .01 |
| 12 | .10 | .02 | .01 | .11 | .12 | .07 | -.04 | .11 | .01 | .00 |
| 13 | .02 | -.04 | .08 | .07 | .04 | .16 | -.10 | -.03 | .02 | .04 |
| 14 | .04 | -.16 | .24 | .00 | .21 | .10 | -.05 | .02 | -.07 | .15 |
| 15 | .02 | .04 | -.01 | .04 | .11 | .09 | .00 | .07 | -.07 | -.04 |
| 16 | .02 | -.04 | .11 | -.01 | .01 | .15 | .11 | .11 | -.08 | .10 |
| 17 | -.12 | -.01 | .12 | .01 | .16 | .02 | .04 | .12 | -.11 | .11 |
| 18 | -.09 | -.09 | .14 | -.09 | -.06 | .02 | -.00 | -.04 | .08 | -.17 |
| 19 | -.06 | -.07 | .12 | -.08 | -.04 | .04 | -.03 | .01 | -.06 | -.05 |
| 20 | -.03 | -.10 | .09 | -.01 | .13 | -.00 | .10 | .06 | -.13 | .13 |

TABLE 4 (continued)

| Item | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|------|------|------|------|------|------|------|-----|------|-----|----|
| 12 | .13 | | | | | | | | | |
| 13 | .05 | .13 | | | | | | | | |
| 14 | .01 | .08 | .05 | | | | | | | |
| 15 | -.05 | .14 | -.02 | -.01 | | | | | | |
| 16 | -.03 | .09 | .08 | .00 | .01 | | | | | |
| 17 | -.02 | .00 | .06 | .21 | -.01 | .03 | | | | |
| 18 | -.06 | -.06 | .02 | .09 | .04 | -.01 | .07 | | | |
| 19 | -.07 | -.06 | .05 | .11 | .03 | .00 | .24 | .25 | | |
| 20 | .04 | -.02 | .03 | .14 | .07 | -.09 | .22 | -.04 | .06 | |

Note: With $df = 531$, r must be .09 to be significant at .05 level, and r must be .12 to be significant at .01 level.

By treating the items of the ACLU questionnaire as *phenotypic* indices of civil libertarianism, an attempt was made to obtain some indication of the number of factors underlying these issues. The correlation matrix was factor analyzed by the principal-axis method. Squared multiple correlations were inserted in the correlation matrix as communality estimates and all eigenvalues (roots) greater than unity applied as a criterion for factor extraction. A single factor emerged from the analysis that accounted for 47 per cent of the total

variance. The need for further rotation was obviated by the presence of one *genotypic* factor. The loadings of each questionnaire item, along with the sex classification variable, are presented in Table 5. Accepting a factor loading of $\pm .30$ as salient, it appeared that this relatively small factor is defined by six item markers in the questionnaire.

TABLE 5
FACTOR MATRIX

| ACLU item | Loading | Description of salient |
|-----------|---------|--|
| 1 | -.18 | |
| 2 | .03 | |
| 3 | -.19 | |
| 4 | -.35 | Communist Party affiliation |
| 5 | -.42 | Protection against self-incrimination |
| 6 | -.34 | Freedom to criticize government |
| 7 | -.09 | |
| 8 | -.37 | Governmental book banning |
| 9 | -.03 | |
| 10 | -.50 | Suppression of offensive entertainment |
| 11 | -.12 | |
| 12 | -.22 | |
| 13 | -.17 | |
| 14 | -.35 | |
| 15 | -.11 | Curtailment of court review |
| 16 | -.18 | |
| 17 | -.29 | |
| 18 | .09 | |
| 19 | -.03 | |
| 20 | -.23 | |
| Sex | .14 | |

D. DISCUSSION

The results of the study indicated that for the present sample of respondents and issues, the attitudes concerning civil liberties fell short of being encompassed by a strong unitary factor of civil libertarianism. On the contrary, we are dealing with a potentially multidimensional concept. Support for one aspect of civil liberties bore, at most, a modest relationship; for example Numbers 1 and 4 (Communist-oriented) and 17, 18, and 19 (discrimination-segregation) achieved but modest correlations. Censorship Items 8 and 10 were slightly correlated but Item 9, also concerning censorship, did not correlate with either of the two. Items specifically referring to police behavior (Nos. 12 and 15) did not correlate very much with each other. On the other hand, some items that seem to have no special connection achieved correlations as high as those that do.

A factor analysis of the ACLU questionnaire, however, did produce a

tentative clustering of six of the items. Possibly the attitudes expressed toward the content of these items (e.g., protection against self-incrimination, freedom to criticize governmental activities, absence of intellectual censorship, etc.) represents the common commitment of ACLU members. Aside from these "shared" attitudes, numerous parochial issues (e.g., wire tapping, role of the FCC in "cleaning up" television, racial discrimination in housing and employment) function as "specific" to enhance the appeal of the organization to particular target groups.

Future work in this changing area of human concern suggests several strategies. For example, one might think in terms of questionnaires in subareas of issues delineated by the ACLU questionnaire. An academic version might cover such issues as the freedom of teachers to refuse to sign loyalty oaths, freedom of students to hear controversial speakers, and prohibition of dossiers on students and faculty members concerning activities that may be held against them at a later time. Such an approach may be more meaningful to the respondent as well as providing more marker variables for the identification of a "factor" within the civil libertarian domain. On the other hand, the boundaries of the questionnaire might be extended to include contemporaneous events (e.g., nonviolent protest, voter registration, racial insurrection). In either case, the area of civil liberties represents a vital and compelling field for behavioral research.

E. SUMMARY

In order to determine the consistency of attitudes toward civil liberties, an instrument assessing 20 issues was administered to a large group of undergraduate college students. The group of respondents was found to have a modest libertarian bias, and there was no significant difference between the sexes. The items were found to have high discriminability; intercorrelations among the items, however, were found to be generally low, giving slight evidence that for this group of respondents and issues civil libertarianism constituted a single dimension.

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THE INFLUENCE OF ANCHORS IN THE CHOICE OF POLITICAL CANDIDATES*¹

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A. INTRODUCTION

After the 1964 presidential election, a number of newspaper columnists² noted that Senator Goldwater's defeat would have been worse had Governor Wallace of Alabama not dropped out of the race. The assumption is that many who voted for Goldwater would have voted for Wallace had his name appeared on the ballot.

It could be argued, however, that Wallace's withdrawal caused Goldwater to lose votes. As Volkmann (5) showed, end-stimuli, or anchors, influence the judgment of other stimuli. It is now suggested that Wallace could have served as a political anchor for Goldwater. Since Wallace's political position was to the right of Goldwater, the effect would have been to make Goldwater appear more moderate. If this is so, he might have attracted a number of moderate voters who ultimately voted for Johnson.

Although the problem of political perception has been extensively studied [e.g., (1, 2)], the roles played specifically by anchors in the determination of choice of candidate have been left unexplored. Therefore, to test the plausibility of the above reasoning, a mock election was held. Specifically, it was hypothesized that Goldwater would receive more votes when students had to decide among Goldwater, Wallace, and Johnson than when they had to decide between just Goldwater and Johnson.

B. METHOD

1. *Subjects*

Included in the poll were 241 students taking introductory psychology at Long Island University. In a previous survey using a similar sample of different subjects, it was determined that the typical student judges himself to be slightly to the political left of moderate and clearly to the right of liberal.

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¹ A brief version of this paper was presented at the convention of the Eastern Psychological Association held in Atlantic City, New Jersey, April, 1965.

² See M. Childs in *The New York Post*, November 5, 1964.

2. Ballots

Two different paper ballots were distributed. One listed the names of Barry Goldwater, George Wallace, and Lyndon Johnson. The other ballot listed only Barry Goldwater and Lyndon Johnson. The candidates' party affiliations were also listed. For Wallace, the authors indicated the States Rights Party. To control for possible order effects, all permutations of names within each condition were used.

3. Procedure

The ballots were distributed to students in several classes during the first two weeks of December, 1964. Within each row, all students received the

TABLE 1
A COMPARISON OF PRESIDENTIAL CHOICE WITH AND WITHOUT WALLACE

| Ballot type | Presidential choice | | Total (N) |
|-------------|---------------------|----------------|--------------|
| | Goldwater (N) | Johnson (N) | |
| Goldwater | 36 | 76 | 112* |
| Johnson | (30.0%) | (63.3%) | |
| Wallace | | | |
| Goldwater | 15 | 106 | 121 |
| Johnson | (12.4%) | (87.6%) | |
| Total | 51 | 182 | |

* Wallace received eight votes (6.6 per cent).

same ballot. From row to row, however, the ballots were distributed randomly. Because of the physical distribution of seats, no row contained more than six students.

To create the feeling of anonymity, the students in each class voted simultaneously and folded their ballots immediately after making their choices. Prior to their selections, it was emphasized that this procedure would enable them to make their choices in complete privacy, so that their answers should be honest.

C. RESULTS

For the population sampled, the data clearly support the hypothesis. As shown in Table 1, Goldwater received 30 per cent of the votes when Wallace's name appeared on the ballot but only 12 per cent when it did not. In other words, even though Wallace received almost 7 per cent of the votes, Goldwater received significantly more votes when Wallace was a competitor than when he was not ($\chi^2 = 11.190$; 1 *df*; $p < .001$).

D. DISCUSSION

To the extent that these differences are generally valid, the study could have important meaning for political strategists. At the time of Wallace's withdrawal from the campaign, a number of newspaper accounts³ reported that immense pressure was exerted upon Wallace to drop out. The reason given was the apprehension that he might draw votes away from Goldwater. At the very least, his withdrawal was interpreted as helping Goldwater.⁴ To quote Dean Burch,⁵ Republican National Chairman during the presidential campaign and the individual held most responsible for Goldwater's devastating defeat: "I am personally very happy to see him get out of the race."

Interpreted within light of this data, however, it would seem that Wallace's action caused Goldwater to lose votes that eventually went to Johnson.

Also in the light of this study, one can attempt to reevaluate the 1948 Presidential contest between Truman and Dewey. Truman's victory had been considered an upset. Not only did he have to compete with a heavy pre-election favorite, Thomas Dewey, but he also had to contend with Henry Wallace and Strom Thurmond. Thurmond was certain to win some southern electoral votes and, in fact, he did. Henry Wallace was expected to cut into Democratic strength in New York and possibly other states of the East and Middle West (4, p. 501).

However, if the point made in this study is generally applicable, Henry Wallace, politically to the left, and Strom Thurmond, politically to the right (4, p. 500), caused Truman to appear strongly moderate. Since Thurmond and Wallace concentrated their attacks upon Truman, it would seem they served as salient anchors for only Truman. Apparently their extreme positions had no similar impact upon Dewey's political image.

For those voters with moderate views, Truman began to appear increasingly attractive, enabling him to win many of their votes (1, p. 549). Since most Americans see themselves as political moderates (1, p. 549), we can begin to understand, in part, how Truman might have overcome Dewey's pre-election advantage (3).

A similar analysis can be made for Lindsay's victory in the 1964 Congressional campaign. John Lindsay, a New York Republican, was opposed by

³ See *The New York Times*, July 10, 1964, p. 10; July 17, 1964, p. 11; July 19, 1964, p. 51; July 26, 1964, "The News of the Week in Review."

⁴ See *The New York Times*, July 20, 1964, p. 1; July 26, 1964, "The News of the Week in Review."

⁵ See *The New York Times*, July 26, 1964, "The News of the Week in Review."

Eleanor French, a Democrat and clearly to Lindsay's left, and Kieran O'Doherty, a Conservative and clearly to Lindsay's right.⁶

All three candidates appeared together frequently on street corners and television, and engaged in heated debate.⁷ O'Doherty accused Lindsay of being too liberal. French accused Lindsay of not having a sufficiently liberal congressional record.⁸

While it was generally believed that Lindsay would still win, their vigorous campaign led some observers to suspect that his plurality would be small. Instead, in a year when Johnson, a Democrat, won by a landslide, Lindsay, a Republican, won by a greater landslide.⁹

It would be argued that the forces of anchoring led voters to perceive Lindsay's political position as being quite moderate, in contrast at least, to the positions of French and O'Doherty.¹⁰ Hence, like Truman, but unlike Goldwater, he appeared quite palatable to the majority of moderate voters in his district.

Obviously, the findings should be considered only suggestive of what might occur among the general electorate. They were obtained under conditions quite different from a voting booth, on a largely Jewish population under 21 years of age, and among individuals who are probably more intelligent than the average voter. On the other hand, however, the data of concern to us are not the absolute values obtained, which would certainly vary from population to population, but rather the *difference* in percentage between the two ballot conditions.

In addition to sampling problems, one must consider the important issues of saliency, relevance, and distance of anchors. A smaller follow-up study was performed late in February using 43 New York University evening session students. During this period, interest in presidential politics was at an ebb. This time, no statistical significance between the two ballot conditions was obtained.

In a brief discussion afterwards, however, a number of students indicated that they simply forgot who George Wallace was. The point is that an anchor has to be salient in order to be effective.

Similarly, a Socialist-Labor candidate would probably be so vague in the

⁶ See *The New York Times*, October 27, 1964, p. 23.

⁷ See *The New York Times*, September 12, 1964, p. 13; October 27, 1964, p. 23.

⁸ See *The New York Times*, September 12, 1964, p. 13.

⁹ In the 17th Congressional District, New York, Lindsay received 71.5 per cent of the congressional vote compared to 61.3 per cent that Johnson received nationwide. Within the 17th District, Johnson received 70.5 per cent of the presidential vote (see *The New York Times*, November 5, 1964, p. 1).

¹⁰ *The New York Times*, October 27, 1964, p. 23.

public eye that it is doubted that one could influence the outcome of a presidential election. It is also believed that George Rockwell of the American Nazi Party would be an ineffectual anchor because he is too far to the political right of most national candidates. It would not be surprising, however, if he could make George Wallace appear more moderate.

Of course, the analyses made of the Truman-Dewey and the Lindsay-French-O'Doherty elections are speculative. It is also conceded that had George Wallace not dropped out, Barry Goldwater would have lost votes to him, particularly in the South. The interesting point is, however, that Goldwater *might* have more than recouped his loss by increasing his moderate vote outside of the South. At this point, it is also of interest to note that had Truman lost the entire South to Thurmond, he still would have beaten Dewey (4, p. 503).

Obviously, the issue is quite complex. More extensive and controlled testing is necessary before much confidence can be placed in anchoring as a potent determinant of voting behavior.

Other populations must be sampled. Different anchors varying along saliency, distance, and relevance should be investigated. Even if the dynamic were demonstrated to be unquestionably viable, it would require further effort to determine those candidates who could serve effectively as anchors. It is suspected, for example, that at the very best political anchors are short-lived. Nevertheless, the findings strongly urge that political analysts give serious consideration to the dynamic under discussion.

E. SUMMARY

Invoking anchor theory, it was hypothesized that had George Wallace of Alabama become a presidential candidate in 1964, he might have made Barry Goldwater appear more moderate, enabling him to win more popular votes than he did. To test this, a mock election was held in which 120 Long Island University students chose among Wallace, Johnson, and Goldwater and 121 between just Johnson and Goldwater. Goldwater received significantly more votes for the former ballot than for the latter, supporting the hypothesis. Other elections are discussed in the light of anchor theory.

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PERSONALITY CORRELATES OF INNER- AND OTHER-DIRECTION*¹

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A. INTRODUCTION

Fundamentally this study is a correlational type of analysis between two psychological instruments, but one that has long been overdue in view of the widespread use of the concepts involved without supporting experimental data. Since the introduction of David Riesman's conceptualizations on social character (10), both laymen and social scientists have philosophized about the relationship of tradition-, inner-, and other-directedness to personality variables. Although Riesman made it quite clear that he is concerned about something akin to "national character" and *not* personality, one often hears inner- and other-direction being associated with introversion-extroversion, security-insecurity, strength of self-concept or ego, and a variety of other personality continua.

The very type of research that would resolve this disagreement had not been possible until recently, since a valid technique of selecting inner- and other-directed subjects from a population had not been available. The homogeneity of easily available subjects, generally college students, and disagreements as to interpretation of Riesman's typology have prevented the use of behavioral measures as independent criteria of social character. However, with the development of the I-O Social Preference Scale (7), this type of investigation is possible and can readily be accomplished by studying covariation between this instrument and a valid personality measure.

B. METHOD

Based on Riesman's writings, the guiding hypothesis of the study was that personality variables cut across social character in such a way that no discernible personality differences exist between inner- and other-directed

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subjects. Tradition-direction was not of concern to this study, since, again according to Riesman, tradition-directed individuals probably no longer exist in this country and especially not in the large urban center in which this study was conducted.

The method consisted of administering the I-O scale and the Minnesota Multiphasic Personality Inventory (MMPI) to a sample of 100 undergraduate male business administration students. The I-O Social Preference Scale is a 36 forced choice item instrument scored along a five-point continuum. A sample item is: "I respect a person who (*a*) is considerate of others and is concerned that they think well of him; (*b*) lives up to his ideals and principles."

The scale has a test-retest reliability coefficient of .85, and a number of studies using the instrument have established its validity in measuring inner- and other-direction (1, 2, 4, 5, 6, 8). In addition, studies by Gellermann (3) and Peterson (9) support the Riesman thesis and hence tangentially contribute to supporting the validity of the instrument.

As a measure of personality, the MMPI was chosen over the many other instruments available, primarily because of its widespread use that resulted in good validation norms appropriate to the sample utilized in the study. The MMPI measures used in the design were the 10 basic clinical scales, the four validity scales, and the following 11 research scales routinely scored by National Computer Systems: First Factor (A), Second Factor (R), Ego Strength (Es), Low Back Pain (Lb), Caudality (Ca), Dependency (Dy), Dominance (Do), Social Responsibility (Re), Anti-Semitic Prejudice (Pr), Socioeconomic Status (St), and Control (Cn).

Statistical analysis was carried out by two different methods: (*a*) a treatment-by-subjects mixed design analysis of variance was performed, for which the subjects on the basis of their I-O scale were divided into four groups or quartiles from extreme inner-directedness to extreme other-directedness; and (*b*) the data were subjected to a Pearsonian correlational analysis.

C. RESULTS AND DISCUSSION

The total sample obtained normally distributed scores on the I-O scale over a range of 77 points—from 35 to 111—with a mean of 77.15 and a standard deviation of 15.57. These statistics are quite similar to those obtained in the original validation of the instrument and in subsequent studies using the scale with similar populations.

The analysis of variance of the MMPI revealed insignificant differences between the four inner-other-directed groups or quartiles ($F = 0.91$, $df =$

3/96), but a significant group-by-scales interaction effect was obtained ($F = 1.51$, $df = 72/2304$, $p > .05$) indicating that, in fact, statistically the personality profiles between the four quartiles were different, thus negating the hypothesis.

Inspection of the data ruled out the possibility of curvilinear relationships between social character and the MMPI scales, hence individual t -tests were

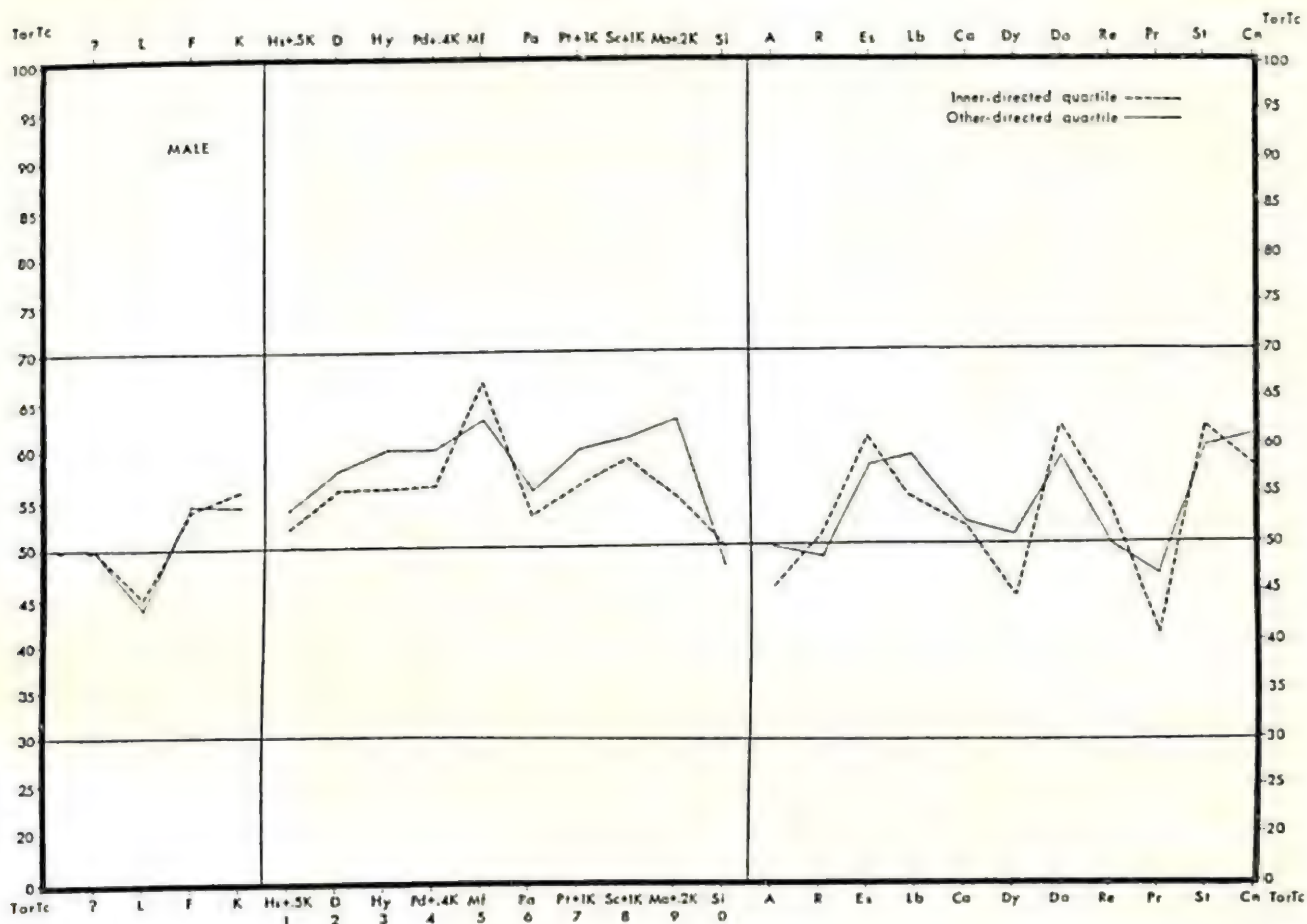


FIGURE 1
MMPI PROFILES OF EXTREME INNER- AND OTHER-DIRECTED GROUPS

run on the separate scales comparing the extreme two quartiles. Significant differences existed on the Hysteria ($t = 2.80$, $df = 48$, $p < .01$), Masculinity-femininity ($t = 2.81$, $p < .01$), and Hypomania ($t = 2.57$, $p < .05$) basic scales. Among the 11 research scales, the Es and Dy Scales differentiated between the two extreme groups at the .05 level, and the Re and Pr Scales were significant at the .01 level. The personality profile of these two extreme groups is presented in Figure 1.

It is interesting to note that the inner- and other-directed subjects do not differ on the Introversion-extroversion (Si) Scale nor on the Personal Defensiveness (K) Scale, although a relationship is often assumed. From the results it does seem, however, that the other-directed subjects may be using

more conversion reaction symptoms to avoid responsibilities (Hy) and showing a greater level of general activity (Ma) than do their inner-directed brethren. On the other hand, the inner-directed person, as compared with the other-directed person, could be said to be somewhat more feminine (Mf) and to indicate greater ego strength (Es) and social responsibility (Re) combined with less dependency (Dy) and prejudice (Pr).

TABLE 1
PEARSONIAN CORRELATION COEFFICIENTS^a

| Scale | <i>r</i> |
|-------|----------|
| ? | .030 |
| L | .099 |
| F | — .017 |
| K | .060 |
| Hs | — .099 |
| D | — .069 |
| Hy | — .137 |
| Pd | — .058 |
| Mf | .113 |
| Pa | — .035 |
| Pt | — .125 |
| Sc | — .083 |
| Ma | — .155 |
| Si | .091 |
| A | — .137 |
| R | .062 |
| Es | .147 |
| Lb | — .088 |
| Ca | — .053 |
| Dy | — .206 |
| Do | .145 |
| Re | .175 |
| Pr | — .139 |
| St | .106 |
| Cn | — .112 |

^a *r* of .195 and .254 is significant at the .05 and .01 level, respectively.

The significance of these minor differences, however, is in serious question when one examines the great similarities in the overall profiles as presented in Figure 1. Not only are all the scores well within the normal range, but the significant differences between the groups are generally only about 2 or 3 raw score points, which could hardly be useful for predictive purposes in individual cases.

The additional statistical treatment—Pearsonian correlation coefficients²

² Although the I-O scale data was normally distributed, some of the MMPI scales did not distribute normally, hence both the correlation data and the analysis of variance results must be interpreted cautiously. The effect of a nonnormal distribution on one variable of a Pearsonian coefficient is to reduce the *r* of a perfect correlation to a figure something less than ± 1.00 .

computed on the total sample of 100 subjects between the I-O scores and MMPI scales—lends further support to this cautious interpretation of the above positive results (see Table 1).

Here clearly the results indicate rather poor relationships between personality variables and social character. Of the 25 statistics only one (Dy) is significantly different from zero at the 5 per cent level of confidence, and this could well have occurred by chance. Hence, on the basis of the correlational analysis, a relationship between inner- and other-direction and personality variables as measured by the MMPI is not indicated. These data, in conjunction with the analysis of variance results and inspection of the profiles, lead to the conclusion that in spite of the statistically positive results in one aspect of the study, it cannot be properly deduced that socially significant personality differences between inner- and other-directed subjects exist.

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DEVIANCE AND POSITION IN THE SMALL GROUP* 1, 2

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A. INTRODUCTION

Social context has been shown to influence behavior in a number of settings. Conformity behavior has been shown to relate to such parameters of the social context as group size and group unanimity (1). In the family setting, birth order has been shown to relate to certain characteristics of the individual (3). Studies using sociometric methodology have related patterns of sociometric choice to performance in bomber crews (6) and to performance in the classroom (7). A number of studies have shown there to be a relationship between sociometric position, group performance, and deviance in a laboratory setting (5). However, there has been relatively little research on the relationship between social context and legally defined deviant behavior. The present research has as its aim the exploration of the relationship between position in the small group and such deviant behavior.

The small group studied was the military squad, which consists of about 10 men who interact on a face-to-face basis. The size of the squad makes it feasible to collect and analyze meaningful sociometric data concerning the positions of the group's members in the structure of the group. It is also possible to perform a multidimensional scaling analysis.

B. METHOD

1. *Design of the Study*

Three types of squads were studied: (a) AWOL squads, which contained a member who had been AWOL for more than 72 hours; (b) 209 squads, which contained an individual who had been performing poorly during training and had been referred to a psychiatric facility for a discharge for unsuitability (AR 635-209); and (c) hospital squads, which contained a member who had

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² This material was presented in part at the 73rd Annual Meeting of the American Psychological Association, Chicago, Illinois, 1965.

been hospitalized for an upper respiratory infection. The hospital squads were included to control for the effect of removing a member from the squad.

2. Sample

Squads were studied between the third and eighth weeks of basic training at Fort Dix, New Jersey. There were 44 AWOL squads, thirty 209 squads, and 42 hospital squads. The mean squad size was 10.1 men. The modal educational level was high school graduate, and the mean age was 20.9 years.

3. Instruments

a. Sociometric. Intrasquad sociometric choices were obtained by asking the following questions: (a) Rank all of the men in the squad on how likeable you think they are (include yourself), (b) Rank all of the men in the squad on how well you think they are performing in training (include yourself), (c) Rank all of the men in the squad on how well you think they are bearing up under basic training (include yourself), (d) List the men in this squad who help you get your work done, (e) List the men in this squad whom you can "tell your troubles to," and (f) List the men in this squad with whom you have trouble getting along.

b. Multidimensional scaling. Multidimensional scaling has been developed to deal with the situation in which objects vary along a number of attributes simultaneously (8). The purpose of the analysis is to uncover the number and characteristics of the attributes employed by Ss in making global psychological judgments about complex objects. No *a priori* assumptions are made about the attributes. A number of investigators have suggested that the technique has a secure enough basis to be applied to situations where the dimensionality is unknown [e.g., (4)]. This technique was applied to the study of perceived similarity among squad members. Each S made global judgments of similarity between all possible pairs of his squad mates on an 11-point scale.

4. Procedure

AWOL squads were studied between 72 hours and 10 days after the AWOL occurred; the AWOL was studied as soon as possible after he was returned. 209 squads were studied within one week of the referral of the individual; the 209 individual was studied at the same time. Hospital squads were studied within one week of the admission of the individual; the individual was studied as soon after his release from the hospital as was possible.

C. RESULTS

The purpose of the study was to explore the relationship between position in a group and deviance. The AWOL, 209, and hospitalized individuals may be termed *removed members*.

TABLE 1
AVERAGE SOCIOMETRIC RATINGS OF THE REMOVED MEMBERS BASED ON
SELF-PERCEPTIONS AND PERCEPTIONS BY SQUADMATES

| Sociometric variable | AWOL | 209 | Hospital | F | p |
|--|------|------|----------|-------|-------|
| Average ranking of likeableness of the removed member ^a | | | | | |
| Squad members' perceptions | 7.85 | 7.79 | 5.61 | 15.10 | <.001 |
| Removed members' perceptions | 4.50 | 6.58 | 4.27 | 3.59 | <.05 |
| Average ranking of performance of the removed member ^a | | | | | |
| Squad members' perceptions | 8.82 | 9.32 | 6.77 | 17.78 | <.001 |
| Removed members' perceptions | 6.12 | 7.71 | 4.74 | 5.14 | <.01 |
| Average ranking of bearing up of the removed member ^a | | | | | |
| Squad members' perceptions | 9.10 | 8.81 | 6.65 | 17.85 | <.001 |
| Removed members' perceptions | 6.00 | 7.84 | 4.34 | 8.82 | <.001 |
| Average number of men who help with getting work done | | | | | |
| Removed members' perceptions | 1.26 | 1.42 | 2.22 | 3.79 | <.05 |
| Average number of men to whom troubles can be told | | | | | |
| Removed members' perceptions | 0.60 | 0.63 | 1.20 | 4.47 | <.025 |
| Average number of men with whom there is trouble getting along | | | | | |
| Removed members' perceptions | 1.38 | 1.46 | 0.98 | 1.05 | NS |

^a Possible range is 15, with 1 = highest.

1. Sociometric Ratings

Sociometric ratings are available on the self-perceptions of the removed members and on the perceptions of the removed members by their squadmates. These data are summarized in Table 1. The *F* scores for eight of the nine variables were statistically significant. Further analyses with *t*-tests indicated that on all the ranking questions the 209 Ss were ranked lower by both their squad and themselves than were the hospitalized Ss. While the AWOLs were ranked lower by their squads than were hospitalized Ss, they did not rank themselves any lower than did hospitalized Ss. However, the AWOLs reported significantly fewer men who helped them get their work done and to whom they could tell their troubles than did the hospitalized Ss.

2. Multidimensional Scaling

Data were analyzed for 10-man squads and for 11-man squads with one member randomly removed. Thus the average judgments of similarity, for

* *****
AWOL

-2.01 -1.56 -1.12 -0.67 -0.22 0.23

Dimension 1

FIGURE 1

PLOT OF MULTIDIMENSIONAL SCALING LOADINGS AFTER EPILOG ROTATION
FOR AWOL SQUADS

20 of the 44 AWOL squads, 16 of the thirty 209 squads, and 15 of the 42 hospital squads, were computed. These judgments were then averaged across types of squads. Data were analyzed in one, two, three, and four dimensions. The set of judgments was best fit by a one-dimensional space in the case of

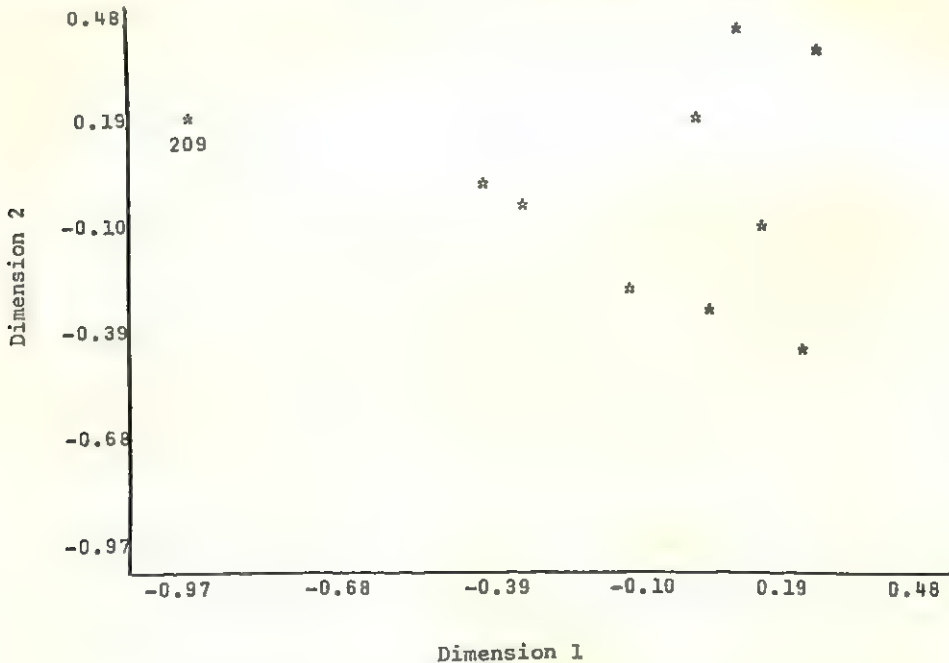


FIGURE 2

PLOT OF MULTIDIMENSIONAL SCALING LOADINGS AFTER EPILOG ROTATION
FOR 209 SQUADS

AWOL squads, a three-dimensional space for 209 squads, and a four-dimensional space for hospital squads. Plots of loadings after epilog rotation are presented in Figures 1, 2, and 3. The analyses indicate that the AWOL and the 209 soldier were perceived as being unlike their squadmates. This perceived dissimilarity was not noted within hospital squads.

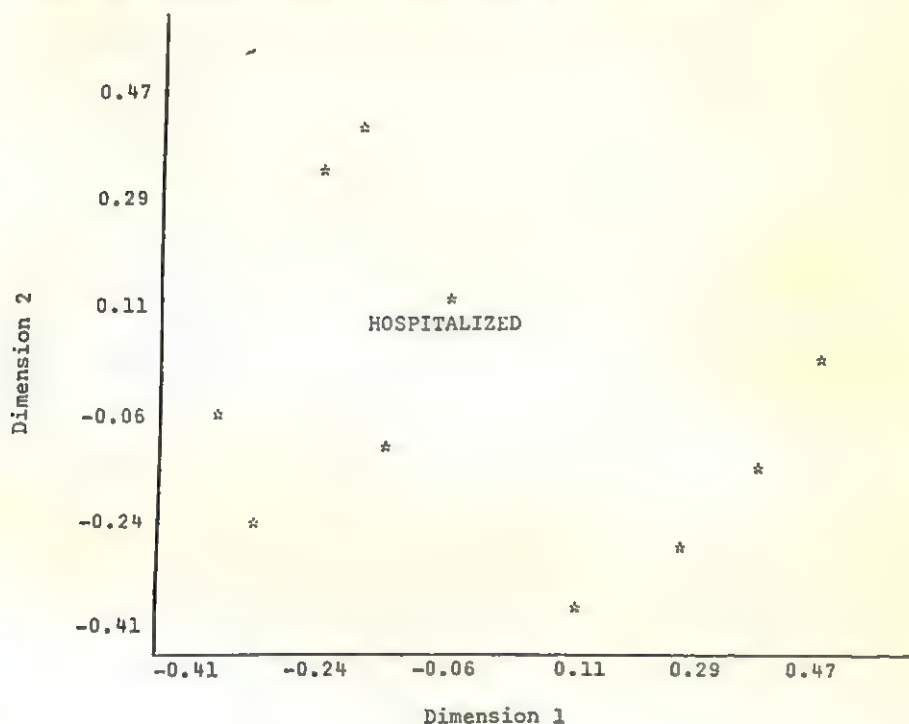


FIGURE 3
PLOT OF MULTIDIMENSIONAL SCALING LOADINGS AFTER EPILOG ROTATION
FOR HOSPITAL SQUADS

D. DISCUSSION

The focus of this study was on the position of a deviant in the structure of the small group of which he is a member. The data indicated significant differences among the positions occupied by AWOL, 209, and hospitalized Ss in their respective squads. In general, the AWOL and 209 Ss were perceived by both themselves and their squadmates as occupying a lower position in the squad than hospitalized Ss. Evidence of the deviant individuals' perceived dissimilarity from their squadmates was also provided by the multidimensional scaling analysis.

More specifically, however, the questionnaire was designed to assess two major dimensions of group structure: (a) an evaluative hierarchy, and (b) a mutual obligation network. The evaluative hierarchy is concerned with ranking on a complex of normative qualities and was assessed with the ranking items. The data indicated that both the AWOL and 209 offenders were lower than the hospitalized Ss on this dimension, as based on the perceptions of position of both the removed members and their squadmates. The mutual obligation dimension involves judgments of the likelihood of an individual giving support on occasions when needed (2). Data from the questionnaire (average number of men who help S get his work done and average number of men to whom S can tell his troubles) indicate that the AWOLs are less involved in mutual obligation networks than are hospitalized Ss.

The results of the study, then, indicated that position in the structure of the small group is related to deviance. Because of the *ex post facto* design of the study, the direction of causality could not be established; a study predicting performance from an individual's position in his group is currently underway.

E. SUMMARY

The relationship between position in the small group in the military and deviant behavior was studied. Comparisons were made among the positions of (a) AWOLs, (b) poorly performing Ss referred for psychiatric evaluation for an unsuitability discharge, and (c) Ss hospitalized for a respiratory infection. A total of 116 squads were studied by sociometric questionnaires and multidimensional scaling techniques. The data indicated that deviants occupied lower positions in their groups than did hospitalized Ss in theirs.

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THE EFFECTS OF VARIOUS SOCIAL FACTORS ON MOTIVATION IN A COMPETITIVE SITUATION*

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A. INTRODUCTION

A previous study by Bruning, Sommer, and Jones (2) investigated the motivational effects of cooperation and competition on the performance of simple and complex tasks. The present experiment was conducted to test two speculations by Bruning *et al.* as to what additional variables might affect motivation and performance in a competitive situation. The first experiment was concerned with the effects of opponent proximity on performance; the second experiment investigated performance as it was affected by the proportion of wins and losses experienced by the Ss.

B. EXPERIMENT I

1. *Apparatus*

The apparatus was the same as that used in Experiment I of the Bruning *et al.* (2) study.

2. *Subjects and Procedure*

The Ss were 32 male volunteers who were enrolled in introductory psychology courses at Ohio University. One-half were randomly assigned to the norm competition (NC) group and the other half to the direct competition (DC) condition. The experimental task and procedure were the same as described in Experiment I of the Bruning *et al.* study, with the following exception. NC Ss were told they should try to predict more accurately than the average of a large group of Ss who had previously participated in the experiment, while DC Ss were told to try to predict more accurately than their opponent. In the NC condition all Ss performed alone, while in the DC condition Ss performed in pairs. As in the previous experiment, no knowledge of results was given.

3. *Results*

The latency data were first converted to speeds of $1/t \times 100$. For purposes of statistical analysis, these data were then grouped into five blocks of six

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trials each. The results of this analysis showed that the overall mean difference between the NC and DC groups was nonsignificant, but that the trials-by-groups interaction was sufficient to attain significance ($F = 3.26$, $df = 4/120$, $p < .025$). Inspection of the mean performance curves revealed that the NC Ss showed no systematic change across trials, while the speeds of the DC Ss steadily increased.

C. EXPERIMENT II

1. Apparatus

The apparatus was basically the same as that used in Experiment I. However, instead of a single light to signal the start of a trial, four lights were arranged on a panel in front of the Ss. As before, one light signaled the start of each trial. After both Ss had made their choice, one of the three remaining lights came on to give each S knowledge of results—whether he had been correct, his opponent had been correct, or whether both S and his opponent had been correct. If no lights came on, it meant that neither S nor his opponent had been correct.

2. Subjects and Procedure

Forty-eight male volunteers from introductory psychology classes were used as Ss. Ss were randomly assigned to three groups of 16 Ss each. The procedure was essentially the same as that used in Experiment I, except that all Ss performed in pairs and were instructed to try to predict race outcomes more accurately than their opponents.

The three groups were classified, via manipulation of knowledge of results, as "winners," "losers," or "equals." Ss in the "winners" group were signaled that they were correct on 15 of the 30 races and that their opponents were correct on five of 30. The number of correct predictions signaled Ss in the "losers" condition was simply reversed. In the "equals" condition, Ss were signaled that they were correct on 10 of 30 races and that their opponents were correct on 10 of 30. Ss in all three groups were informed that both had been incorrect on five races and that both had been correct on five.

3. Results

The data were again reciprocated and grouped into five blocks of six trials each. The statistical analysis showed that the main effects of groups were significant beyond the .05 level ($F = 3.70$, $df = 2/45$). Independent multiple t -tests indicated that the speeds of the "equals" were faster than those of both the "winners" ($t = 6.00$, $df = 15$, $p < .001$) and "losers" ($t = 3.77$,

$df = 15, p < .001$). In addition, the comparison of the "winners" and "losers" was marginally significant ($t = 2.24, df = 15, p < .05$).

D. DISCUSSION

Although there was no overall difference between the NC and DC groups in Experiment I, the significant trials-by-groups interaction can be interpreted as partially supporting the speculation of Bruning *et al.* (2) that motivation is increased when the opponent is actually present. The gradual increase of the DC Ss' speeds suggests that motivation induced by the presence of an opponent builds gradually across the experimental session.

The results of Experiment II indicate quite clearly that different proportions of winning and losing to an opponent affect performance. These results also support the theoretical speculations of Atkinson (1) that persistent winners and losers are less motivated than are those who perform when the outcome is in doubt.

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CONFORMITY AS A DIFFERENTIAL FUNCTION
OF SOCIAL PRESSURE AND JUDGMENT
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A. INTRODUCTION

The experimental literature on conformity behavior has reached considerable proportions in the past decade, and has organized itself around three fundamental determinants of the group influence process: interpersonal, intrapsychic, and task properties of the judgment situation (i.e., cognitive variables). Interpersonal factors commonly associated with yielding as opposed to independence include the unanimity and size of the majority group (1, 21), the critical S's status in it (17, 22), and the public nature of the commitment involved in stating a discrepant or conforming opinion (1, 8, 11, 19). These variables are components of what is here referred to as Social Pressure (SP). The research on intrapsychic determinants of conformity is legion, and often contradictory, although such issues are a peripheral focus of this study. Task variables conducive to yielding are the subjective or objective ambiguity of the stimulus (3, 4, 6, 7, 23, 25, 28) and the confidence or knowledgability of Ss (9, 15, 16). These factors are considered to be aspects of what is here called Judgment Difficulty (JD).

A number of theorists have suggested that distinct and separate psychological processes are often labelled together under the rubric of conformity (12, 14). Several papers have suggested that two common processes are those that occur in response to interpersonal and cognitive variables. Thus, Deutsch and Gerard (8) contrasted normative and informational influence, whereas Jackson and Saltzstein (13) referred to normative and modal situations. Wilson (27) formulated processes called social accommodation and self-correction. Thibaut

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and Strickland (26) distinguished group from task set. Schroder and Hunt (24) and McDavid (18) concerned themselves with source- *versus* message-oriented Ss. In the first term of each dichotomy, a relevant external parameter appears to be SP. The person yields to maintain affiliation with, and approval from, significant others. In the second term the salient independent variable appears to be JD. Acquiescence is, in this case, a means of achieving increased consensus about reality through acceptance of others' perceptions and judgments. That subjects may perceive the motivation for conformity in terms of one or the other process is evident from Asch's report (1) that some yielders accounted for their behavior in terms of cognitive convictions of the majority's accuracy, while others cited their reluctance to be "different" (with implications of interpersonal disharmony) regardless of the merit of the issues being judged.

The literature does not, however, provide empirical evidence separating individuals according to whether conformity is for them an interpersonal or a cognitive process. Operationally, this demands a test of whether Ss respond differentially to SP, JD, and combinations of the two. The underlying assumption of this study, in keeping with the "two-factor" theory suggested by the earlier workers, is that when an individual yields due to ambiguity in the stimulus field (JD), he is acting out of motives different from those that operate when he yields because of interpersonal elements in the group situation (SP). Yielding under conditions of JD is probably associated with the recognition that one cannot always be sufficiently informed on all matters to make decisions alone, so that attention to the judgments of others increases the probability of the correct assessment of reality. Yielding under conditions of SP might arise from the learned belief that harmony and unanimity are essential for the maintenance of rewarding relationships with others. While these attitudes need hardly be mutually exclusive, it would appear reasonable that any given individual would take positions on them as if they were independent continua. It was hypothesized, therefore, that yielding under conditions of JD is independent of yielding under conditions of SP.

B. METHOD

High and Low SP were each combined with High and Low JD in a 2×2 factorial matrix. The resulting treatment combinations provided four yielding scores for each of the 68 Ss, who were female nursing students from two hospitals in the New York City area. The average age of the group was 18.24 years with a standard deviation of .84 years. Ss were predominantly white, and a majority were of the Jewish faith. All were residing in dormitories

in the institutional setting (where the research was conducted) and were taking extensive course work and clinical training together. An additional standardization group of 130 *Ss* was employed for pretesting of judgment tasks. Eighty-five of these were student nurses and 45 were in a summer course in introductory psychology at a nearby college. This standardization group responded to judgment tasks independent of information about the choices of one another.

1. *Variations in Judgment Difficulty*

The judgment stimuli consisted of 40 pairs of brief written passages and 40 pairs of 15-second musical passages, in which each pair was preceded by a question involving comparison of the two members on a single objective dimension. To keep the task varied and interesting, the comparison dimension of the questions differed for each of the 80 pairs. The nature of the questions was such that familiarity and training were not likely to be factors. Most of the reading passages were written by the author, although some were based on published sources. All the musical materials were tape-recorded from commercially issued discs of classical music. The items were phrased so as to be answered "A" or "B," depending on whether the first or second passage, respectively, was selected by *S*. A reading question might ask, for example, "Which passage contains more adjectives?" or "Which passage sticks to facts, as opposed to opinions?" Musical tasks covered dimensions, such as "Which violinist is playing more in tune?" or "Which piece is meant to be peaceful and melodious?" Twenty written and 20 music items (i.e., half the test) constituted the High JD condition and were developed so that either of the two alternatives would appear equally plausible as the answer. The remaining half of the test was the Low JD condition and its items were meant to have a clear and objectively correct answer. All items were pretested on the standardization group, and selected from a larger item pool according to how well they met the following two criteria.

a. *Probability of choice criterion.* High JD items required selection of each alternative by about 50 per cent of the standardization group, while almost all such *Ss* should have selected the correct passage for the Low JD items. The actual proportions of choice of the High JD items were within a range of 32 to 68 per cent, with only eight of the 40 items exceeding the stricter limits of 40 to 60 per cent. Low JD items were correctly responded to by at least 80 per cent of the standardization group (at least 90 per cent for 34 of the 40 items).

b. *Subjective difficulty criterion.* It was considered desirable that High JD

items be rated at the "impossible to choose-complete tossup" end of a difficulty scale, while Low JD questions would fall at the "very obvious and easy" end. The early pretests failed to show the desired extreme range, perhaps because Ss were a bit ashamed to admit that they found choices "impossible" for them. In later pretests, then, Ss rated the degree of likeness of the alternatives with regard to the comparison dimension. As finally selected, High JD items were rated significantly higher than Low JD items on both types of scales, with no overlap of means.

High and Low JD items were randomly distributed throughout the test. The experimenter-determined norm, which was of course attributed to Ss' peers, followed a prearranged sequence. For High JD items, the keyed response varied between the first and second alternative, referred to, respectively, as choices "A" and "B." For Low JD, approximately half were neutral trials—wherein *E* reinforced the correct answer to preserve the credibility of the situation—while the others were critical trials—where the communicated norm was the objectively false response. For certain High JD music items a slight hint of time error appeared in the pretests, wherein the second or "B" alternative was chosen disproportionately, regardless of content. This was then balanced in the experiment by the use of alternate forms from one group to the next, which reversed the order of the alternatives for all items. No such balancing was found necessary for the reading questions.

In order to get the data bearing on additional exploratory hypotheses of the study, all experimental Ss were administered a battery consisting of the Adjective Check List (10), the Rokeach Dogmatism Scale (20), and the "balanced" form of the California *F* Scale (5). This was done by hospital personnel several weeks before the conformity procedures were carried out.

2. *Variations in Social Pressure*

Ss appeared in groups of four for the experimental session, which lasted approximately two hours. They were told that they were participating in a study of personality characteristics associated with the ability to make aesthetic discriminations. The first task of each group was the independent completion of ratings of one another on degree of acquaintance, liking, leadership, intelligence, knowledge of music and literature, etc. The form was labelled "Pre-experimental," and an identical one, conspicuously labelled "Postexperimental," was placed in full view of each *S*. Following completion of this task, Ss were instructed in the use of the electrical apparatus, in front of which each *S* had already been seated out of sight of her three partners. In a manner similar to that first described by Crutchfield (7), this equipment provided a toggle

switch for selection of the "A" or "B" alternative, and a set of colored lights, ostensibly registering the choices of the other students. In actuality, of course, *E* controlled these lights through his own instrument panel, on which he was able simultaneously to see and record the choices made by each *S*.

The reading items were placed on *Ss*' desks. Notes were given out in advance, listing the order in which they would respond to each item. For the High SP phase of the experiment, each *S* saw her name in the "Subject Four" position and those of her three classmates in the preceding positions. During the Low SP trials, her note listed her as "Subject Two," while no names were filled in for the other positions. *Ss* were told that, in this phase, they would be working as "anonymous" teams of two. Each *S* was instructed to remain silently facing the apparatus, responding to each item when her number was called by turning the toggle switch in the appropriate direction. The essence of High SP, then, was public communication of choices following norm information from a majority of three. Low SP involved normative information from only one other person, with private or anonymous communication of the actual judgment of *S*. This deliberate employment of a double manipulation (publicness and group size) was done to heighten the contrast between the yielding scores under High SP and Low SP. An SP effect of considerable magnitude was felt to be necessary in order to allow a sufficient range of scores really to test the basic hypothesis of independence. It is recognized that it is, under these circumstances, impossible to separate the relative contributions of publicness and group size to the SP effect, but such a separation was not a relevant goal of the present study. High and Low SP were administered in blocks of 20 music and 20 reading items each. A counterbalanced order was used, in which half the groups received the sequence of SP levels High-Low-Low-High, and the other half the sequence Low-High-High-Low. For both levels of JD, one or two items employed a "divided norm," to counteract any suspicions that may have arisen from the presence of a consistently unanimous consensus.

When the judgment trials were completed, the group responded to a verbally administered questionnaire designed to reveal suspicions regarding the deceptions practiced. *E* then explained fully the actual nature of the experiment and pledged all present not to reveal the facts to classmates who had yet to participate.

C. RESULTS

There appeared to be complete cooperation with *E*'s injunction to *Ss* not to discuss the study with classmates. Another source of possible contamination

arose from the necessity to assemble a sufficient number of trials to assess the internal consistency of the yielding process under four conditions. The consequent length of the session gave Ss time in which they could think and, perhaps, question to themselves the true nature of a situation in which their classmates were giving flagrantly wrong answers to one out of four questions. Therefore, 19 of the 68 Ss revealed, by postexperimental questioning, some degree of suspicion that the lights were "rigged." The number of conformity responses by the "suspicious" Ss was compared with that for the "naive" students. A *t*-test showed no significant differences, suggesting that skepticism on the part of some of the sample did not change their conformity behavior.

Table 1 presents means, standard deviations, and odd-even reliability coefficients (employing the Spearman-Brown correction) for yielding scores under the four conditions. The raw score range of zero to 20 for each High JD score represents the possible number of agreements with the randomly selected norms for these items. The range of zero to 11 raw scores under each of the two Low JD conditions is based only on the agreements with the obviously false norms (i.e., the critical trials). It was necessary to remove from the raw scores that amount of agreement with the norm that might be attributable to perceptual error (for Low JD) or chance overlap of selections when the alternatives are equal in appeal (for High JD). It would seem appropriate to consider as yielding only scores in excess of such base rates. In the pretest, where Ss judged the same materials under conditions free of information about others' choices, the average base rate for the items in the two High JD conditions (i.e., the amount of spontaneous choice of the alternative that happened to be selected later as the norm) was 51 per cent. For the average Low JD item, the error rate was about 6 per cent. Raw scores were adjusted, in both cases, by converting the number of agreements to a percentage of possible agreement, and subtracting from that score either 51 per cent (for High JD) or 6 per cent (for Low JD). Both raw and adjusted scores are indicated in Table 1.

The data of Table 1 indicate that the experiment as a whole was successful in evoking shifts in judgment beyond the base rate of chance agreement with the norm. The response to each of the four conditions was moderately stable with individuals, particularly when external forces (SP and JD) were maximal. Reliabilities of this order, however, are not high by psychometric standards. In order to assess properly the intercorrelations between conditions, correcting for the attenuation attributable to this low reliability seemed to be indicated.

Table 2 presents both the obtained *rs* between several yielding scores and

TABLE 1
AVERAGE CONFORMITY AND ITS INTERNAL CONSISTENCY FOR
THE FOUR TREATMENT COMBINATIONS

| Condition | Raw Scores | | Adjusted scores ^a | | r (1 + 2) ^b |
|-----------------|------------|------|------------------------------|-------|--------------------------|
| | \bar{X} | SD | \bar{X} | SD | |
| High SP-High JD | 13.38 | 4.84 | 32.56 | 33.35 | .75 |
| High SP-Low JD | 2.47 | 2.42 | 17.32 | 23.79 | .69 |
| Low SP-High JD | 11.84 | 4.58 | 17.24 | 34.41 | .62 |
| Low SP-Low JD | 1.16 | 1.32 | 6.94 | 13.89 | .36 |

Note: SP = Social Pressure and JD = Judgment Difficulty.

^a Represents percentages.

^b Correlations of odd and even trials, with Spearman-Brown correction.

their corrected values. The data suggest that these indices would intercorrelate quite substantially if procedures of perfect reliability were available for their measurement. Even with the limitations of the present methodology, all of the coefficients reach the conventional .05 level. The obtained r between High SP-Low JD and Low SP-High JD (the two "pure" measures of responsiveness to JD and SP) is sufficiently large to reject the null hypothesis that yielding under conditions of JD is independent of yielding under conditions of SP. It was believed that support for the hypothesis might still obtain if this r could be reduced to zero through partialling out of the two other yielding scores. The r of .41 was thereby reduced only to .32, which remained significant at the .01 level. The shared variance of conformity responses under High SP-Low JD and under High JD-Low SP, nonetheless, remains sufficiently low that a substantial portion of the variance of each could be accounted for by specific properties of each treatment, error, and nonlinear relationships. An examination of scattergrams for all distributions, however, did not reveal any curvilinearity. Low but significant correlations were obtained under all conditions between conformity scores on music and on reading

TABLE 2
INTERCORRELATIONS BETWEEN CONFORMITY SCORES

| Condition | High SP-High JD | High SP-Low JD | Low SP-High JD | Low SP-Low JD |
|-----------------|-----------------|----------------|----------------|---------------|
| High SP-High JD | | | | |
| High SP-Low JD | .63** (.88) | | | |
| Low SP-High JD | .28* (.41) | .41** (.62) | | |
| Low SP-Low JD | .35** (.67) | .41** (.82) | .26* (.55) | |

Note: r s in parentheses are corrected for attenuation. SP = Social Pressure and JD = Judgment Difficulty.

* p = less than .05.

** p = less than .01.

items. It is concluded that a small, but stable, general conformity factor exists in the data.

Table 3 presents the results of a three-way analysis of variance. Due to non-normality of the distribution and the presence of negative scores for High JD, an arc-sine transformation was applied to the adjusted scores. It is seen, in further rejection of the "two-factor" hypothesis, that the mean square for *Ss* is relatively small and cannot begin to obscure the strikingly large main effects of both SP and JD. The interaction term is essentially zero, suggesting that the effects of variation in SP operate constantly through levels of JD, while a similar consistency holds for variations in JD with levels of

TABLE 3
TRIPLE CLASSIFICATION ANALYSIS OF VARIANCE

| Variance source | <i>df</i> | Sum of squares | Mean square | <i>F</i> |
|---------------------|-----------|----------------|-------------|----------|
| Judgment Difficulty | 1 | 6.49 | 6.49 | 15.09** |
| Social Pressure | 1 | 10.16 | 10.16 | 14.94** |
| Subjects | 67 | 103.68 | 1.55 | |
| SP × JD | 1 | .31 | .31 | .61 |
| JD × Subjects | 67 | 28.76 | .43 | |
| SP × Subjects | 67 | 45.59 | .68 | |
| SP × JD × Subjects | 67 | 34.38 | .51 | |
| Total | 271 | 229.37 | | |

Note: SP = Social Pressure and JD = Judgment Difficulty.

** *p* = less than .001.

SP. It was suggested that an analysis of variance using unadjusted scores would be desirable as a check against fortuitous results emerging from the correction. This was done, using arc-sine transformations, and revealed essentially similar results (i.e., significant main effects of SP and JD, with no interaction). The only difference from the variance analysis done with adjusted scores was in the magnitude of the *F* ratio for JD. This was extremely high (543.31) due to the expanded range of High JD scores in comparison with Low JD scores. For reasons explained earlier, the author considers raw scores meaningless as a "conformity" indice, and therefore prefers to use the analysis based on adjusted scores, for which the data are given.

Of potential additional interest are the correlations between the various yielding scores and a variety of scales derived from the Adjective Check List. The number of such correlations attaining statistical significance is so small, in relation to the number of tests run, that the most parsimonious explanation—that of chance occurrence—probably holds. Furthermore, none of the coefficients between conformity and scores on the Balanced *F* and Rokeach Dogmatism Scales was greater than zero.

Although the pre-experimental questionnaire was intended mainly to facilitate SP manipulations through arousal of affiliative anxiety, it is a potential source of meaningful data in its own right. The questionnaire required each *S*, it will be recalled, to rate her three experimental partners on a number of personal and intellectual attributes. The rating scales on intelligence, musical and literary knowledge, and desirability as a future experimental partner, however, displayed such a restricted range of responses as to be inapplicable for analysis. Questions dealing with liking for, and degree of acquaintance with, the other three students in the room were combined into a single eight-point scale. For each student, scores were computed based on the mean of her ratings of the three partners (acceptance of others) and the mean of her three partners' rating of her (acceptance by others). Table 4 shows the correlations between these measures and conformity, as well as the association

TABLE 4
CORRELATIONS BETWEEN CONFORMITY AND SOCIOMETRIC SCORES

| Sociometric variable | Conformity variable | | | |
|------------------------------|---------------------|--------------------|--------------------|-------------------|
| | High SP- High JD | High SP- Low JD | Low SP- High JD | Low SP- Low JD |
| Acceptance of others | .13 | -.17 | .06 | -.48** |
| Acceptance by others | .15 | -.11 | .03 | -.50** |
| Leadership ratings of others | .33** | -.16 | .06 | -.44** |
| Leadership ratings by others | .12 | -.13 | .07 | -.44** |

Note: SP = Social Pressure and JD = Judgment Difficulty.

** p = less than .01.

of yielding scores with a four-point rating scale of leadership. The leadership scale was also used to derive two measures: the mean of a given *S*'s rating of each of the partners (leadership rating of others) and the mean rating of her as done by them (leadership ratings by others).

It was somewhat surprising to find that yielding under the condition when only SP was high or only JD was high showed no relationship to any of the sociometric measures in Table 4. Under the Low SP-Low JD condition, however, yielders tended to score lowest on both of the acceptance and both of the leadership measures. Under conditions of High SP-High JD, a slight but significant positive correlation was found between yielding and perception of peers as leaders.

D. DISCUSSION

From the evidence of this study, it appears that individuals vary not so much in their differential responsiveness to SP or JD as in their general readiness to exhibit conformity and independence under either condition. In

terms of corrected correlations between High JD-Low SP and High SP-Low JD, these forces share 36 per cent of the variance in the observed conformity behavior. Inasmuch as 64 per cent of the variance remains separately attributable to SP and JD, as well as to error, it would be going too far in the opposite direction to characterize conformity as a unitary process. Thus, the two-factor theories exemplified by Wilson (27), Deutsch and Gerard (8), and the others can be accepted only to the extent of recognizing that external determinants of yielding are multiple. The more extreme theoretical position underlying the hypothesis of the present study—that two unrelated psychological processes give rise to behaviors both of which “look” similarly like conformity—must be rejected.

The trivial interaction term of the *F* test suggests that the yielding observed under High SP-High JD is an additive function of the yielding separately associated with each variable. The mean conforming score under this condition is 32.56 per cent over the base rate for chance agreements with the norm. The mean yielding produced when only JD and when only SP were high is 17.24 and 17.32, respectively. Lest the conclusion be reached that JD and SP are entirely equivalent in their potency, it must be recalled that the corrected *r* between the High SP-High JD condition and the High JD-Low SP condition was .41, whereas that between High SP-High JD and High SP-Low JD conditions was .88. In this study, then, response to SP seemed a better predictor than response to JD of an individual's behavior, when both conditions were acting simultaneously. In the future, workers in this area may prefer to vary SP alone if a concise approximation of an individual's overall yielding tendencies is needed.

The failure of the earlier literature to find consistent correlates of yielding in multidimensional tests of personality is matched by the present null results employing the Adjective Check List (ACL). One reason for the lack of such demonstrable relationships may be the different levels of awareness tapped by self-report tests and experimental conformity situations. The ACL requires *S* to give what in essence is largely his conscious self-picture. A conformity experiment requires *S* to distort judgments and comply with others to an extent that he is often unaware of. Thus, if a need for succorance actually is related to yielding, the *Ss* most characterized by this need are not necessarily those able to recognize in themselves, much less report, traits characteristic of succorant wishes. The concept of authoritarian character, reflected in the *F* Scale, has apparently ceased to be a productive one to relate to conformity. The instrument may measure beliefs that represent the prevalent ethos (and

are therefore associated with the tendency to be a "conformist") only at certain historical periods and in certain subcultures. For example, items on moralistic views of sexuality and human behavior, reflected in the *F* Scale, may not be acceptable to nurses who are exposed to more sophisticated ideas on these matters.

The results with the sociometric material suggest that acceptance of and by experimental partners is negatively related to conformity only under Low SP-Low JD. As indicated in Table 1, conformity under this condition was the rarest and least stable. The rather high *r*s between this form of yielding and the ratings of liking and acquaintance stand out too conspicuously to be ignored, however. Apparently, there is a special quality to yielding behavior under minimal external forces. It may represent an inappropriate way of aligning oneself to others (in this case the anonymous other) when real closeness and positive acceptance is lacking. Hoffman (12) has labelled one type of conformity as "compulsive" in contrast to "realistic." His definition of realistic conformity involves the perception of others as knowledgeable, or the likelihood of sanctions for independence, whereas the compulsive is described as indiscriminately conforming in the absence of either of these reality conditions. When either SP or JD, or both, are high, there may be a reality basis for believing in the wisdom of acquiescence. When both are low, compulsivity in Hoffman's sense may be the best description of the process of yielding. The negative correlations between conformity under the double "Low" condition and both leadership measures are perhaps better understood as a positive relationship between independence and perception of, and by, others as leaders. It is consistent with common sense to find that *S*s who are most assertive in the presence of their peers would have the easiest time resisting conformity when all pressures are low. A more provocative finding is that perception of others as assertive apparently leads one to disagree with them privately, but not publicly, and only when the bases for disagreement are clear. This is, however, a tentative formulation and must be taken cautiously in view of the lack of relationships between these sociometric ratings and yielding under the conditions of moderate to high external pressure.

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